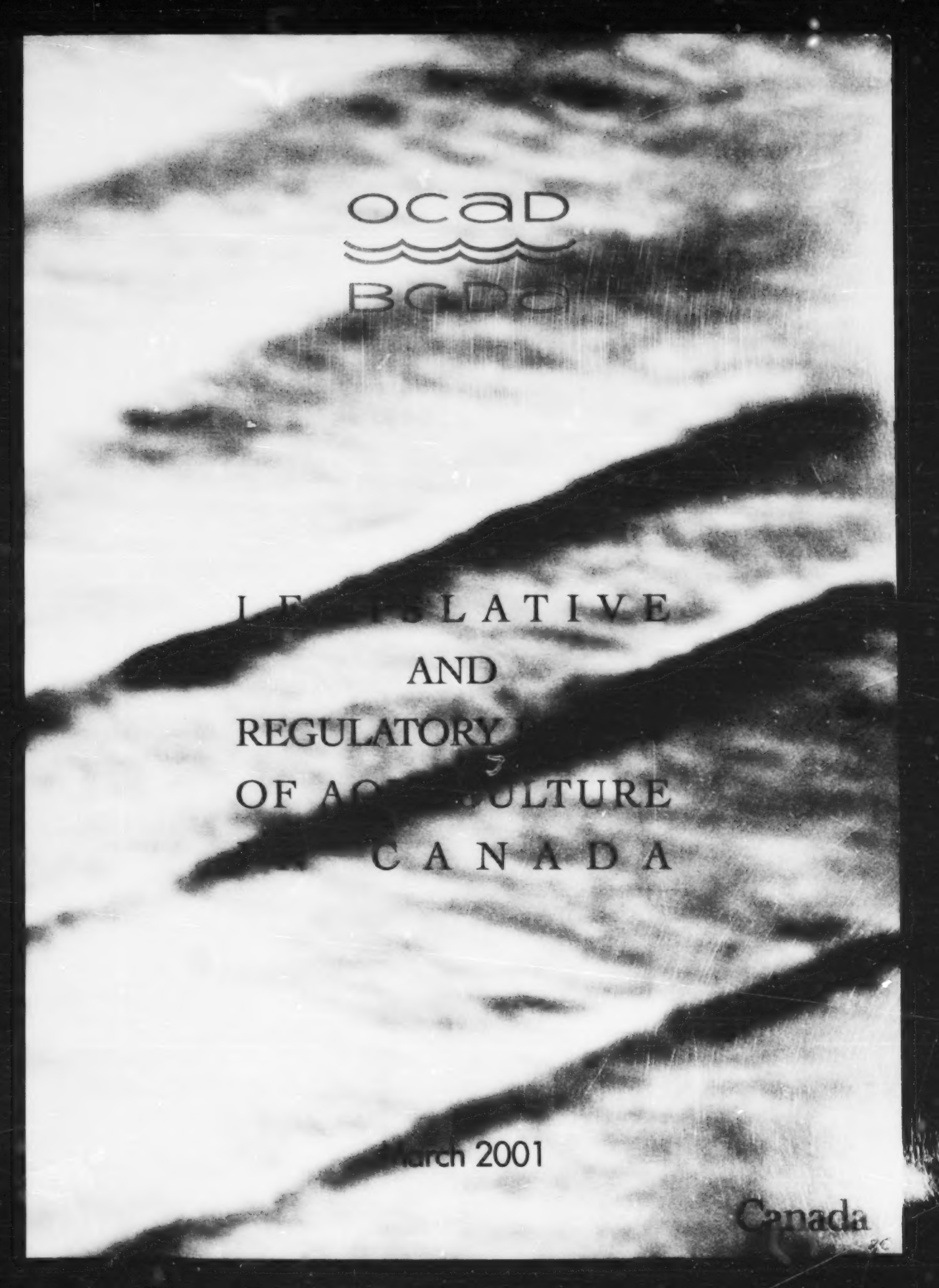
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March 2001
Canada

Legislative and Regulatory Review of Aquaculture in Canada

Published by:

Communications Branch
Fisheries and Oceans Canada
Ottawa, Ontario
K1A 0E6

DFO/6144

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Cat. No. Fs23-402/2001E
ISBN 0-662-30373-3

101-04529/

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LEGISLATIVE AND REGULATORY REVIEW OF AQUACULTURE IN CANADA

Note: The views and recommendations expressed in the attached document were arrived at by the Commissioner for Aquaculture Development as part of an independent review. Although the Department of Fisheries and Oceans (DFO) and other federal departments participated in this review, the reader should note that this document does not necessarily reflect the views of participating federal departments.

Office of the Commissioner for Aquaculture Development (OCAD)
March 2001

Table of Contents

1. Introduction 1

1.1 Principles Fundamental to the Legal Review 3
1.2 Other Factors Considered in the Legal Review 4

2. Overview of the Aquaculture Industry in Canada and Abroad 5

2.1 Overview of International Commercial Aquaculture 5
2.2 Overview and Economic Outlook for Canadian Commercial Aquaculture 6
2.3 International Legislative and Regulatory Reviews 8

3. Constitutional and Legal Authority for Aquaculture 11

3.1 Definitions 13

4. Legislative and Regulatory Role of Government and its Impact 15

4.1 Federal Government Role in Aquaculture 15
4.2 Issues Addressed Under the Legal Review 17
4.3 A Summary of the Impacts of the Current Legislative and Regulatory Environment 30

5. Approaches to Environmental Management and Protection 31

6. Objectives for a New Legal Framework 33

6.1 Initiatives Identified for the Legal Review 33

7. Action Plan 35

7.1 Federal-Provincial-Territorial Harmonization Process 37
7.2 Legal, Policy, and Program Gaps Not Addressed by the Priority Initiatives 37
7.3 Legislative Options—Scenarios A, B, and C (Phase Two) 38

8. Priority Initiatives for a Federal Framework For Aquaculture in Canada 41

8.1 Recommendations Related to the Legislative and Regulatory Environment 41
8.2 Recommendations Related to Specific Legislative and Regulatory Authorities 42
8.3 Recommendations Related to the Federal-Provincial-Territorial Harmonization Process 46

Annexes — Table of Contents 49

Annex I— Table of Recommendations for Priority Initiatives 50
Annex II— Organizational Chart for the Legal Review 70
Annex III— Reference Papers 71
Annex IV—Legislation and Regulations Pertaining to Aquaculture 73

Glossary of Acronyms

ADM—Assistant Deputy Minister
AFR—Atlantic Fishery Regulations
BIT—business impact test
CAIA—Canadian Aquaculture Industry Alliance
CCFAM—Canadian Council of Fisheries and Aquaculture Ministers
CCG—Canadian Coast Guard
CEAA—Canadian Environmental Assessment Act
CFIA—Canadian Food Inspection Agency
CSSP—Canadian Shellfish Sanitation Program
DFO—Department of Fisheries and Oceans
EMPWG—Environmental Management and Protection Working Group
FAO—United Nations Food and Agriculture Organization
FHPR—Fish Health Protection Regulations
HADD—harmful alteration, disruption or destruction of fish habitat
HRDC—Human Resources Development Canada
MPFR—Maritime Provinces Fishery Regulations
MOU—Memorandum of Understanding
NWPA—Navigable Waters Protection Act
OCAD—Office of the Commissioner for Aquaculture Development
PCPA—Pest Control Products Act
PFR—Pacific Fishery Regulations
RCMP—Royal Canadian Mounted Police
SWG—Scenario Working Group

1. Introduction

Canadian aquaculture is a growing industry. In 1999, total aquaculture farm-gate production from over 600 farms was C$611 million, representing roughly 25 percent of the total landed value of Canadian fish and seafood. In the last decade, the growth rate has averaged 14 percent per year in value and 15 percent per year in volume. This rate exceeds the annual global growth rate of aquaculture but lags considerably behind the growth in leading countries. Aquacultural production facilities now operate across Canada, with activities in all provinces and in the Yukon Territory. However, the industry is now at the point in its business cycle where Canada will not be able to successfully compete in the global marketplace unless costs are reduced through an improved regulatory environment, leadership in technology and management practices, and diversification of product lines (e.g. new species, new products).

While the Canadian aquaculture industry has great growth potential, it currently operates without an appropriate policy, regulatory and legislative framework. Most of the measures in place today were not developed with aquaculture in mind and thus are often applied to the sector in an inconsistent manner. Many of the regulations under the *Fisheries Act* are not well adapted or directly relevant to aquaculture—a situation that results in the aquaculture industry being managed as a subset of the traditional fisheries. This is analogous to equating traditional livestock and crop agriculture to the hunting and gathering of animals and plants.

Canadian legislation, which is based on the model of traditional fisheries and terrestrial agriculture, does not define the term aquaculture. Therefore, it is difficult to make appropriate distinctions in legal requirements that should apply only to the traditional fishery, those that should apply only to aquaculture, and those that should apply to both. Moreover, given the division of powers between the federal Parliament over fisheries and provincial legislatures over property and civil rights, for constitutional purposes it is important to distinguish between those aspects of aquaculture activities that are fisheries and those that are related to property and civil rights.

In recognition of these impediments, the *Federal Aquaculture Development Strategy*,[1] released in 1995, called for a "comprehensive review of all federal legislation and any accompanying regulations to identify and remove, where appropriate, constraints to aquaculture development." In 1998, the Canadian Aquaculture Industry Alliance (CAIA) conducted a business impact test (BIT) to assess the implications of the

current regulatory regime on the development of the sector. The intent of the assessment was to identify the need for appropriate regulations. In fact, the BIT identified fundamental problems with the way the regulatory system works and identified several constraints to industry growth and development directly attributable to existing legislation, regulations, and policy. In 1999, the Commissioner for Aquaculture Development launched a federal legislative and regulatory review as a top priority. The objectives of this review[2] are outlined in Section 6, with recommendations presented in sections 7 and 8.

To assist him in overseeing and coordinating the review, the Commissioner established and chaired an Aquaculture Steering Committee comprised of Assistant Deputy Minister-level (ADM) representatives from five branches of the Department of Fisheries and Oceans (DFO) and nine other federal departments and agencies having responsibilities for aquaculture. Additionally, two working groups were established: the Scenario Working Group (SWG) and the Environmental Management and Protection Working Group (EMPWG). These two groups coordinated the activities of several sub-groups that worked on specific subjects (e.g. fish health, access to ocean space). In addition, a federal-provincial-territorial Task Group on Aquaculture was created at the direction of the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM) to develop recommendations for Ministers on appropriate means to help foster an environmentally sustainable aquaculture industry. This group also serves as the mechanism whereby governments seek to advance the harmonization[3] and consistency of federal, provincial, and territorial legislation and regulations pertaining to aquaculture.

The objective of this document is to provide a report on Phase One of the Commissioner's legislative and regulatory review of aquaculture in Canada. It presents measures that he considers to be urgent and focuses mainly on polices rather than directly on laws and regulations. This document identifies priorities and presents

---

[1] Minister of Supply and Services Canada, 1995. DFO/5066. The *Federal Aquaculture Development Strategy* was announced by the government in 1995 following several years of extensive stakeholder consultation. It outlined a federal role to enable the development of the aquaculture sector in a manner that would complement the roles and responsibilities of industry, academia, and the provincial and territorial governments. The Strategy is also available online at http://ocad-bcda.gc.ca/efederalstrategy.html

[2] For brevity, "legislative and regulatory review" will hereafter be referred to as a "legal review."

[3] Harmonization is defined as working cooperatively across jurisdictions (federal, provincial and territorial) to develop and implement consistent, coordinated and complementary policies, standards, objectives, legislation and regulations, to prevent unnecessary duplication or overlap.

recommendations on the basic elements of a renewed legal framework that will better serve the development of sustainable aquaculture in Canada. Some of these measures should be viewed as temporary until Phase Two is completed, or until more profound and longer term modification to the Canadian legal framework for aquaculture is undertaken.

1.1 Principles Fundamental to the Legal Review

The Commissioner believes that legislative and regulatory reform must support the concept of sustainable aquaculture, that is, the development of an industry that is both environmentally and economically sustainable. The following were crafted as guiding principles for the legal review process:

Aquaculture is a legitimate user of land, water, and ocean space; consequently, industry deserves equitable access to the aquatic resource base.

Like all other industries, aquaculturists shall be afforded the long-term investment security to conduct their businesses following responsible business practices.

Environmental legislation and regulations applicable to the industry must be enforced and managed within a framework of risk analysis and risk management.

Fish health protection must be effective and supportive for both wild and aquaculture populations.

The government must continue to fulfil its mandated responsibility for an integrated management of fisheries and oceans and to ensure health and safety (including navigation, human health, the safety of fish and seafood products as food) and occupational health and safety, while taking into account the modernization of national and international practices.

To the extent possible, federal and provincial legislation and regulations should be harmonized and complementary.

Best efforts should be directed toward the establishment of "single window, one-stop shopping".

Property rights governing aquaculture must be clear.

Legislation and regulations and implementation shall be transparent and consistent.

Government legislation and regulation shall serve to create a regulatory environment that does not unnecessarily impede industry competitiveness.

1.2 Other Factors Considered in the Legal Review

Other factors that were considered in developing options for a legal framework for aquaculture are:

- **Federal and provincial jurisdiction** The division of legislative authority (between the federal Parliament and provincial legislatures) to deal with aquaculture activities under the *Constitution Act* was the basis for the legislative and regulatory review.

- **Leadership** The provinces have taken a strong leadership role in aquaculture and many provinces have enacted aquaculture legislation and regulations. In addition, federal-provincial-territorial MOUs on aquaculture have improved administrative coordination (e.g. on leasing). Many provinces indicated a willingness to support and participate in the federal legal review provided that they retained their authorities and administrative responsibilities.

- **Legislative timetable** Given the amount of time required to develop and pass legislation, the practical aspects of having new legislation approved had to be taken into consideration. Amending the *Fisheries Act* would also require consideration of a range of issues beyond those related to aquaculture. Consequently, OCAD decided to defer proposals for new legislation and/or amendment of the *Fisheries Act* to a second phase of its legal review and, in Phase One, focused on immediate and sometimes temporary measures to address current policy and regulatory problems.

- **Need for a DFO aquaculture policy** Although the Federal Aquaculture Development Strategy (FADS) was launched in 1995, DFO does not have an aquaculture policy in place. The latter is essential before undertaking Phase Two of the legal review.

2. Overview of the Aquaculture Industry in Canada and Abroad

> ***"Aquaculture is the culture of aquatic organisms, including fish, molluscs, crustaceans and aquatic plants. Culture implies some form of human intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Culture also implies individual or corporate ownership of the stock being cultivated."***
>
> **Source: United Nations Food and Agriculture Organization (FAO). Definition adopted in Canada's *Federal Aquaculture Development Strategy*.**

Aquaculture is a technology-based, sustainable agri-food industry that uses aquatic resources. As with the production of poultry, juveniles are either produced on-site or purchased from specialty suppliers. Fingerlings (juvenile fish) or spat (juvenile shellfish) are maintained in managed culture settings where they feed (fish are fed a commercially prepared, optimal diet while shellfish feed on phytoplankton available in the water column) and are cared for to ensure animal health and product quality.

As an agri-food business, aquaculture involves acquiring capital resources, planning business activities, hiring and training employees, developing technology, procuring supplies, and implementing primary activities such as production, marketing, and after-sales service. Costs are incurred in the process of adding value to the products. When the fish and shellfish reach an appropriate size, and when the producer and buyer have agreed upon a sales contract, the crop is harvested, processed to meet consumer requirements and shipped to market, generally arriving within hours of leaving the water. To be successful, aquaculture producers must minimize production costs and maximize productivity.

2.1 Overview of International Commercial Aquaculture

Today, commercial operations exist throughout the world and aquaculture has become one of the fastest growing food production systems. Between 1984 and 1996, total world aquaculture production more than tripled, from 10.4 to 34.1 million metric tonnes (mmt), and increased in value, from US$13.1 billion to US$46.5 billion. Since 1984, farmed fish and shellfish production has increased at an average annual rate of 10.4 percent, compared to only 2.8 percent per year for conventional livestock production. Moreover, the FAO has calculated that to maintain current global per

capita consumption levels of fish and shellfish, world aquaculture production will need to increase to 62 mmt by 2035.

It is interesting to note that in 1987 the FAO projected that world aquaculture output of food fish would reach 18 mmt by 2000. In fact, this level was attained in 1993, in less than half of the anticipated time.

In 1997, food production experts from around the world gathered at the FAO World Food Summit in Rome. A key conclusion of the summit was that, given declines in wild fishery production and the production increases that can reasonably be expected from land-based agriculture, world food production will not keep pace with demand unless aquaculture production continues its rapid expansion.

2.2 Overview and Economic Outlook for Canadian Commercial Aquaculture

The Canadian aquaculture industry produced approximately 92,000 tonnes of product valued at C$443 million in 1998. Commercial aquaculture ventures have been established in all 10 provinces and in the Yukon Territory. Salmonids (salmon, trout and charr), oysters, mussels and clams are the principal farm-raised species. Finfish accounted for 74 percent of total aquaculture tonnage and 92 percent of the industry's value in 1998-1999. The balance of production was from the shellfish sector, accounting for approximately 24,000 tonnes of product valued at $34 million. A breakdown of 1998 production by species is presented in Table 1.

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Table 1: Canadian Aquaculture Production and Value ($000) – 1999

Species	Tonnes	Value ($)
Salmon	72,290	451,684
Trout	6,623	30,738
Steelhead	6,002	28,754
Other	488	4,711
Oyster	9,286	13,681
Mussel	17,339	23,095
Clam	900	3,800
Scallop	55	366
Other	18	47

Source: Statistics Canada (as of 9/12/00).
Note: Since some data are confidential and not reported, subtotals are therefore greater than the sum of the data listed.

The Canadian aquaculture sector currently employs more than 14,000 people. Approximately 7,000 positions consist of direct employment within the fish and shellfish farming sectors. The balance is comprised of indirect positions in the related aquaculture supplies and services sector.

Within the sector, business structures vary widely from small operations, which serve to supplement the incomes of farmers engaged in traditional agriculture, to large, multi-national organizations. In 1998, some 41 percent of aquaculture companies were incorporated, 37 percent were registered sole proprietorships, and the remainder were unincorporated partnerships.

Table 1: Canadian Aquaculture Production and Value ($000) – 1999

Species	Tonnes	Value($)
Finfish		
Salmon	72,290	451,684
Trout	6,625	30,758
Steelhead	6,002	28,754
Other	488	4,711
Subtotal	**85,485**	**516,673**
Shellfish		
Oyster	9,286	13,681
Mussel	17,339	23,095
Clam	900	3,800
Scallop	55	366
Other	18	47
Subtotal	**27,598**	**40,989**
Total	**113,083**	**557,662**

Source: Statistics Canada (as of 9/12/00).

Note: Since some data are confidential and not reported, subtotals are therefore greater than the sum of the data listed.

The Canadian aquaculture sector currently employs more than 14,000 people. Approximately 7,000 positions consist of direct employment within the fish and shellfish farming sectors. The balance is comprised of indirect positions in the related aquaculture supplies and services sector.

Within the sector, business structures vary widely from small operations, which serve to supplement the incomes of farmers engaged in traditional agriculture, to large, multi-national organizations. In 1998, some 41 percent of aquaculture companies were incorporated, 37 percent were registered sole proprietorships, and the remainder were unincorporated partnerships.

Canadian aquaculture is predicted to grow in all regions and with respect to all species, with industry members forecasting average annual increases of up to 20 percent in production volume over the next few years, provided the right business conditions are in place.

If predictions for production in Canada are fulfilled, the industry could exceed $1 billion in farm-gate sales alone by 2005 with a total value of the sector exceeding $2 billion. However, Canada may have difficulty maintaining its current aquaculture production levels, much less achieving its potential, unless constraints to its growth are removed. Currently, the three principal constraints are (i) an inappropriate regulatory and policy framework; (ii) lack of access to production sites; and (iii) difficulty in securing access to financing.

2.3 International Legislative And Regulatory Reviews

As part of the legal review, the legal and policy frameworks used by Australia, New Zealand, Norway and the United States were examined. Interestingly, in recognition of legal landscapes that are complex, confusing, involve many government departments and are in need of overhaul, in all these countries regulatory and legislative reviews for the aquaculture sector were under way in 2000. This situation reflects a disharmony between the way the sector functions and the existing legislation and regulations that govern it. It also reflects the growth of this rapidly evolving sector internationally and the fact that the sector now has a sufficient critical mass to warrant government attention.

Regulatory enforcement is one of the more significant issues that governments must deal with. National governments need to establish regulatory regimes that are efficient in terms of their cost to taxpayers and to industry, while meeting regulatory objectives. Inappropriate regulation and its consequent cost to industry can affect competitiveness. In Canada, a more efficient and effective regulatory regime is required if the Canadian industry is to continue to be competitive.

The OCAD review of the legal and policy frameworks in Australia, New Zealand, Norway and the United States found that:

- All of these countries are coordinating their aquaculture activities among many departments, by means of numerous acts involving federal, state, and municipal

governments. Clearly, the logistics of developing comprehensive and cohesive aquaculture policies are challenging.

- These countries are struggling to balance the growth of viable aquaculture industries with the increasingly important issue of aquaculture and the environment. (For a discussion of Canada's efforts in this area, see Section 5.)
- These countries officially support aquaculture development in the context of overall sustainable development.
- Despite their geographic separation, these countries are confronting the same key environmental issues, including escapes of aquaculture stocks, disease, use of therapeutic agents and organic effluent.
- Major "turf wars" exist within the governments of several of these countries over management and regulation of the aquaculture industry.

2.3.1 An international review by the FAO

In recent years, the FAO has recognized that there is "a growing interest in many countries to develop a comprehensive regulatory framework for aquaculture that will protect the industry, the environment, other resource users, and the consumer."[4] As a result, the FAO has initiated an international review of regulatory frameworks. While the review is still under way, results to date reveal that internationally, the situation is strikingly similar to that which exists in Canada. For instance, as governments have come to recognize the economic potential of aquaculture, there has also been a growing realization that inappropriate laws and institutional arrangements have significantly constrained development of the sector.

As is the case in Canada, traditional fisheries in other countries are generally regulated by a single government department. Aquaculture, however, is frequently regulated by many agencies under a variety of laws. Consequently, developing a comprehensive regulatory framework is often legally and institutionally complex. It typically involves drafting or amending legislation that addresses a variety of issues such as land-use planning and tenure, water quality, fish movement and disease, pharmaceutical use, food quality, and public health. Legislative change of this nature also requires establishing arrangements to ensure the cooperation and coordination of a variety of institutions with jurisdiction over natural resources, animal and public health, and the environment.

[4] From FAO Fisheries Circular #886, entitled "Review of the State of World Fishery Resources: Aquaculture."

While Canada is not alone in facing the need to establish a more appropriate legal framework for aquaculture, resolution of this issue in a timely manner would assist Canadian industry in maintaining or improving its competitive position.

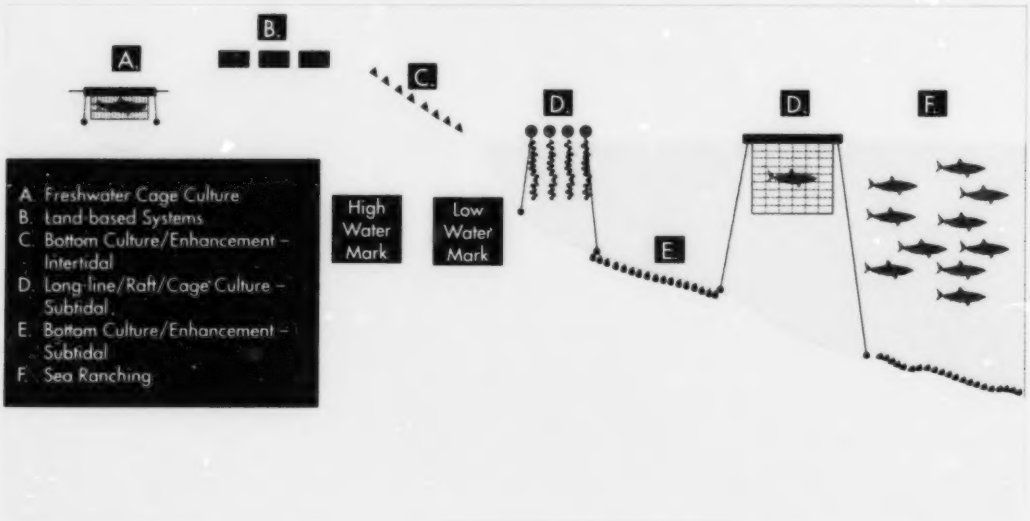
3. Constitutional and Legal Authority for Aquaculture

In order to maintain the solicitor/client privilege related to the legal advice provided by the Department of Justice, this part of the document will remain confidential.

The fact remains that aquaculture activities in Canada cannot be regulated solely by either the federal or the provincial authorities. The legislative and regulatory framework whereby aquaculture is regulated and administered will continue to involve both levels of government and its effectiveness will require collaboration between them.[5]

[5] **Annex IV contains a list of legislation and regulations pertaining to aquaculture.**

Figure 1: Scope of Canadian Aquaculture Activities



3.1 Definitions

Types of Aquaculture Activities

A. Freshwater (Lake) Cage Culture*: in cage culture operations, hatchery-produced stocks are grown in floating cages under provisions of a lease.

B. Land-based Systems: in land-based aquaculture operations, hatchery-produced stocks are grown in tanks or ponds located on private property.

C. Bottom Culture/Enhancement—Intertidal Zone: bottom culture/enhancement in the intertidal zone consists of two distinct activities. Marine plants or sessile** shellfish are managed under provisions of a lease. Or, marine plants or shellfish are managed without a lease, and a fishing licence is required for harvesting.

D. Long-line/Cage Culture*: long-line and/or cage culture operations operate in subtidal waters. Typically, they consist of floating-rope or net-cage systems that are anchored to the seabed. Such systems operate within the provisions of a provincial or federal lease.

E. Bottom Culture/Enhancement—Subtidal Zone: subtidal bottom culture and enhancement is virtually identical to bottom culture and enhancement activities in the intertidal zone. The principal difference is the location of the activities in the coastal zone and the governing jurisdictions related to the activities.

F. Enhancement/Sea Ranching: in sea ranching operations, the sea may be regarded as an aquatic pasture where the hatchery-reared fish are released, forage for food and seek shelter. To facilitate recapture, sea ranching is commonly conducted with migratory stocks, such as salmon, that return to their natal streams to spawn.

* refers to "suspension-type" aquaculture operations

** sessile: attached directly by its base without a stalk or peduncle (a stalk-like projection in an animal body).

4. Legislative and Regulatory Role of Government and its Impact

While aquaculture is largely a private sector initiative, much of the activity in aquaculture is conducted using public sector resources, namely water and ocean space. Therefore, measures intended to manage and regulate activities conducted within the public resource base will continue to have a determining influence on the pace of growth and competitiveness within the commercial aquaculture sector.

Government policies, programs, legislation, and regulations shape the environment in which industry operates and thus influence industry's competitive capabilities.

The government's promotion of the aquaculture industry must be balanced with a respect and concern for other uses of aquatic resources.

Government initiatives are primarily directed toward supporting infrastructure (i.e. R&D, education and training, etc.) and toward creating a regulatory and policy framework conducive to industry development.

The Federal Aquaculture Development Strategy is designed to enable industry development while ensuring that environmental integrity is maintained.[6]

This next section:

- provides an overview of the role of the federal government in aquaculture;
- provides a synopsis of four issues fundamental to an appropriate legislative and regulatory framework for aquaculture;
- provides a synopsis of twelve significant regulatory and legislative issues; and
- discusses the general impacts of the current legislative and regulatory environment on the aquaculture sector including the role of federal government organizations in relation to aquaculture.

4.1 Federal Government Role in Aquaculture

The federal government carries out its regulatory role in aquaculture in several areas, with provisions contained in a range of federal legislation and regulations. While the following list is not comprehensive, it presents an overview of the major roles of the federal government.

---

[6] *Federal Aquaculture Development Strategy*, p. 8

4.1.1 Federal Authorities Related to Aquaculture Lease Approvals

For suspension aquaculture activities,[7] most aquaculture operations must lease underwater land to carry out their activities. Under Memoranda of Understanding (MOUs) with most provinces, the provincial governments administer the leasing process for all "near-shore" activities (except in P.E.I.).[8] However, decisions from federal authorities are required in relation to a number of matters.

During the initial lease approval stage,[9] federal authorities may be required to issue authorization for aquaculture activities related to the following:

- **environmental assessments,**[10] under the *Canadian Environmental Assessment Act* (*CEAA*);[11]
- the possibility of a harmful alteration, disruption or destruction (HADD) of **fish habitat**, under section 35 of the *Fisheries Act*;[12] and
- **navigable water approvals**, under section 5(1) of the *NWPA*.[13]

The federal government must also assess the impact of proposed aquaculture sites with respect to a number of other matters including:

- native rights and land claims;
- migratory birds;
- utilization by other groups; and
- shellfish food safety.[14]

---

[7] See Figure 1.

[8] "Near-shore" is an indefinite term. The federal and provincial governments do not agree on the jurisdictional authority, that is, where provincial authority ends and federal authority starts, with respect to the seabed beyond the tidal mark.

[9] Provincial leases usually state that all required federal and provincial permits/authorizations must be obtained prior to the issuance of a lease.

[10] Text presented in boldface indicates that the issue is elaborated in Section 4.2.2.

[11] Under *CEAA*, environmental assessments are only initiated when there is a "trigger" as a result of the federal government issuing a permit, providing funding, etc. The department whose action results in triggering the environmental assessment is responsible for managing the environmental review process. Issuance of an approval under section 5(1) of the NWPA would be a *CEAA* trigger.

[12] DFO would first determine if an aquaculture operation creates a HADD; if it does, an authorization to proceed may be issued based on the undertaking of appropriate mitigation measures by the project proponent(s).

[13] Approvals are required if it is determined that a site "significantly interferes with navigation." Most suspension-type aquaculture operations would appear to fall within this determination.

[14] In order to protect food safety, shellfish species such as oysters, mussels and clams can only be harvested from areas that have been tested for certain faecal bacteria and naturally occurring biotoxins.

4.1.2 *Federal Involvement in the Operational Phase of* Aquaculture Activities

Once an aquaculture operation is approved, a number of other federal regulatory provisions have an impact upon aquaculture activities:

- **section 36 of the *Fisheries Act*** related to the release of substances deleterious to fish;
- **the policy on introductions and transfers of aquatic organisms;**
- **aquatic animal health management,** including
  - **eradication of diseased animals and related compensation for eradication,**
  - **access to therapeutants;**
- **appropriate application of fisheries management policies to aquaculture activities;**
- **authorizations to collect seedstock;**
- **access to wild fish resources** for the purposes of research, broodstock supply and seedstock;
- delivery of **shellfish food safety programs.**

4.1.3 *Other Federal Involvement Related to Aquaculture*

The federal government also has responsibility for management of enhancement or sea ranching of public stocks, which may be supported by the use of aquaculture technology.

4.2 Issues Addressed Under the Legal Review

A list of specific legislative and regulatory authorities which the Commissioner considers to have a negative impact on aquaculture development was compiled. The issues were identified from various sources including the 1998 BIT* conducted by CAIA, discussions with federal, provincial and territorial staff and follow-up discussions with industry representatives. Brief highlights are presented below.

* The Business Impact Test (BIT) is designed to help determine how regulations will impact on business, and where alternatives could be more cost effective.

4.2.1 Four issues fundamental to the legislative and regulatory environment

The Commissioner believes development of a renewed federal legal framework for aquaculture should recognize the fundamental challenges inherent in the present legal structure. Four over-arching issues have an impact on the regulatory environment as a whole:

- the need for a clear definition of aquaculture;
- the need for operational stability for aquaculturists;
- the need for use of risk management approaches; and
- the need for a clear federal development mandate for aquaculture.

Definition of Aquaculture

The lack of a definition for aquaculture activities in Canadian law has contributed to the uncertain application of existing legislation, regulations and policy to the sector. A "working definition" to distinguish aquaculture activities from traditional, wild fisheries would be a useful tool to provide clarity and assist in the development of a new legislative scheme that deals with aquaculture activities and wild fisheries in an appropriate manner.

The scope of aquaculture activities needs to be clearly defined in order to appropriately, consistently, and efficiently apply Canadian law to aquaculture activities.

Stability of Operations

Uncertainty also exists regarding public rights of access to waters near aquaculture sites, prevention of interference with aquacultural activities by other users of aquatic resources, ownership of non-farmed species on leased areas, and the problem of managing natural predators at aquaculture sites. Decisions related to authorizations for interference with navigation under the *NWPA* and advice on interactions with fisheries are particularly important to the allocation of aquatic space. With respect to navigation, it is clear that an aquaculture site will not be approved if it is in the middle of a major navigation channel. There are, however, no clear and precise policies in place to determine when an interference with navigation is acceptable, or whether, to what extent and what kind of effect on a wild fishery is acceptable.

It usually takes several years for aquaculture operations to generate a return on the initial investment. To become established, the businesses require leases that last for a period that is relevant to the commercial activity being carried out and rational, transparent regulatory regimes. Yet, it is unclear what rights and obligations aquaculturists have under the existing legislative and regulatory regime, and how these rights and obligations are upheld and enforced. Part of the uncertainty relates to the lack of long-term security for various forms of authorization and licensing of aquaculture activities. This is a deterrent to private investment in aquaculture. The lack of a clear federal leasing policy and regulations (or delegation of administrative responsibilities to the provinces) impedes development of the aquaculture sector, particularly as interest increases in developing areas further offshore.[15]

Risk Management

Incorporation of a risk management process in policy and regulations and a clear approach to the precautionary principle are essential for effective decision-making related to aquaculture. The absence of these important policies has had a negative impact on attracting investment to the sector and on the competitiveness of the aquaculture industry in Canada.

The Commissioner notes that the application of the precautionary principle[16] remains a matter of discussion within the federal government.

Consequently, the absence of a single definition of the precautionary principle as it applies to aquaculture, has resulted in inconsistent and sometimes arbitrary decisions being taken by the federal government, notably with respect to the introductions and transfers of aquatic organisms. It is a conclusion of this review that the federal government should determine how the principle is to be applied to aquaculture.

The absence of a clear definition and policy on its application is considered by some as an impediment to any form of development — a perceived attitude of "if in doubt, do nothing" — and the very antithesis of an approach based on risk analysis and risk assessment.

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[15] Currently there is no federal-provincial agreement on who has jurisdiction over the seabed.

[16] The term precautionary principle is used to apply to situations where a lack of scientific information, or significant scientific disagreement, should not delay actions to prevent harm from potential or well-defined risks.

On the other hand, there is a long history of the use of risk management in regulating many areas including food safety, therapeutant approvals, fisheries management and the application of the *Canadian Environmental Assessment Act*. *Risk assessment* is used to determine the nature and degree of risk. The assessment process must be objective and based on sound science, with only secondary consideration being given to non-scientific information. *Risk management* involves identifying and developing mitigation measures and communication of the risks and their management to a wider audience. Risk management is used to develop and implement appropriate interventions and must take into consideration other matters beyond science including social, economic, cultural, political, and policy considerations.

Using risk management in combination with a defined precautionary approach/ principle offers decision-makers powerful, mutually reinforcing tools that can support sustainable development. Both essentially involve making better decisions under conditions of imperfect information. If they are applied with regard to aquaculture, they aim at reducing the likelihood of unacceptable outcomes by adopting measures and practices that take into account uncertainties related to specific operations and the potential of risks to the environment.

To objectively identify the nature and degree of risk associated with aquaculture, it is essential that risk assessment and management be incorporated into all review processes with respect to aquaculture activities. In addition, the government needs to develop a consistent federal approach to the application of the precautionary principle.

Development Mandate for the Aquaculture Sector

The Commissioner has concluded that the lack of a federal development mandate for aquaculture impedes the government's ability to assist development of the sector in a similar fashion that it provides support to other food sectors. As a result, the aquaculture sector is at a disadvantage in comparison with these sectors in Canada. Moreover, within the global aquaculture sector, the competitiveness of Canadian producers trails that of its principal competitors.

While resolution of the legislative and regulatory issues listed in Section 4.2.2 will help industry improve its competitive position, the federal government should also analyze the appropriateness of other measures to ensure that aquaculture and other food sectors in Canada operate on a level playing field. A solid research and development program would also help to improve industry competitiveness and investor confidence.

Without these measures the sector may continue to experience difficulty in attracting investment.

For the wild fisheries, DFO provides fisheries management services and Human Resources Development Canada (HRDC) provides Fishermen's Employment Insurance. For agriculture, the federal government provides various support programs through legislation such as the *Net Income Stabilization Account* and farm income support such as crop insurance, as well as providing authorities that enable sectors to act jointly and cooperatively in areas such as generic research, marketing, and environmental management.

4.2.2 Issues related to specific legislative and regulatory authorities

a) Environmental Management and Protection Measures, Including Environmental Assessments and Section 36 of the *Fisheries Act*

The fundamental challenge is to ensure that the current broad and varied spectrum of federal measures works efficiently, consistently, and fairly. The aquaculture industry faces a number of sometimes overlapping requirements in terms of environmental measures at both the federal and provincial level, leading to extra costs, delays, and considerable confusion for both industry and government. Currently, there are few standards or guidelines for proponents to follow when planning and implementing an aquaculture venture. The Commissioner believes the absence of formal guidelines for decision-making leads to delays, inconsistent interpretation of regulations and inconsistent decisions.

The *Canadian Environmental Assessment Act* (*CEAA*) provides the basis for consideration of the potential environmental effects of proposed aquaculture operations that require a federal decision, such as approval under the NWPA or federal funding. As well, Federal Coordination Regulations under the act ensure that only one federal environmental assessment is conducted for a proposed project. Through its bilateral agreements on harmonization, *CEAA* also provides a link to provincial environmental assessment processes. However, in addition to the *CEAA* and provincial environmental assessment requirements, there is a range of federal policies, regulations, and legislation in place that address specific environmental components or issues.

Application of CEAA *to aquaculture*

Most new suspension-type aquaculture structures are now being considered a "work" under section 5 of the *NWPA*, which in turn requires the completion of an environmental assessment under *CEAA*. This requirement to complete *CEAA* assessments is relatively recent and, as yet, no tools have been developed to assist industry in understanding and complying with the process[17]. Furthermore, no transition period to comply with the new requirements has been provided.

It would appear that DFO will require information, additional to that submitted with an initial application, to complete *CEAA* reviews of aquaculture operations. Until requirements are clarified, there will be some additional costs for the industry. As many of the environmental concerns are similar for various types of aquaculture activities, class screening could help reduce the costs while ensuring the quality of assessments.

Class screening refers to a planning process. Projects that are subject to screening under the *CEAA*, and that have common characteristics and predictable and mitigable environmental effects, are subject to a screening using a "Model Class Screening Report". This is approved by the Canadian Environmental Assessment Agency through a review process outlined in the Act.

Class screening would also reduce costs and the time required for the review of applications by governments. The development of class screenings, or a comprehensive sectoral guideline for aquaculture, that includes consideration of information requirements for the different jurisdictions, would simplify the process for operators and could be used to help set clearer criteria for evaluation by responsible authorities. Class screenings could also be structured with a view to aiding proponents in meeting the information requirements under other federal laws.

Environmental assessment and review authorities

At present, there are a number of concerns related to aquaculture and environmental management and protection. Foremost, a number of federal environmental protection

[17] There is no obligation for the responsible authority to simplify compliance. The act (CEAA) is in force and the proponents must comply. However, there are options built into the act to simplify compliance, of which the responsible authority may wish to take advantage.

laws apply to the aquaculture industry. For example, the *Canadian Environmental Protection Act* (CEPA), *Fisheries Act* (Sections 35 and 36), *Food and Drugs Act, Pest Control Products Act* (PCPA), *Feeds Act,* and the proposed *Species at Risk Act* require some form of environmental review prior to granting approvals or providing permits. In most cases, provinces also have their own environmental review requirements.

Within the aquaculture industry, the potential for the application of more than one environmental review process is a costly reality and the absence of standards leaves government reviewers with few guidelines for decision-making. Consequently, field officers have to exercise considerable judgement, which may result in inconsistent interpretations and delays. This situation is detrimental to investment. A streamlined, coordinated approach is required to ensure that environmental protection legislation and regulations are applied effectively and efficiently.

Section 36 of the Fisheries Act

One example of a lack of clarity about the application of legislation relates to section 36 of the *Fisheries Act*, regarding the deposition of deleterious substances. By providing clear and transparent standards, regulations under section 36 could give confidence to stakeholders that environmental interactions are managed. Additionally, by specifying compliance standards, regulations would provide added security to the aquaculture sector and to financial institutions.

Application of environmental measures to other sectors

The aquaculture industry has expressed concern that other activities, such as bottom-drag fisheries, are not subject to the same level of environmental review and enforcement, despite the potential for impacts on fish conservation and habitat that may result from these activities. Quite apart from imposing costs on aquaculturists that are not imposed on other users of the aquatic environment, the exemption of some sectors from environmental review may compromise the overall effectiveness of environmental management and protection measures. It also leaves the aquaculture sector open to impacts from other activities. For example, increased sewage discharge from recreational boating activities or from expanding coastal housing development may result in the closure of aquaculture sites[18] and introduce increased costs for monitoring programs.

[18] When necessary, sites are closed for food safety purposes. Sewage contains fecal coliforms and other domestic contaminants such as pesticides and cleaning chemicals. These can be picked up by filter-feeding species such as clams, oysters, and mussels.

Fish Habitat Protection

Provincial and federal governments are hesitant to allocate or expand the size of aquaculture site leases because of ambiguity around the application to aquaculture of the DFO Policy for the Management of Fish Habitat (1986)[19]. This deters investment in the aquaculture industry in Canada.

Section 35 of the *Fisheries Act*, which addresses harmful alteration, disruption or destruction of fish habitat, has major implications for aquaculture development. The application of this provision to the aquaculture industry is not clear, which complicates enforcement and compliance from both the regulators' and the aquaculturists' perspectives.

To date, DFO experience in applying its fish habitat policy to aquaculture has been limited and it has not yet developed a clear and consistent approach that recognizes the contribution of aquaculture to total production from the aquatic resource. Moreover, federal officials have few guidelines to assist them in making decisions and formulating recommendations to the provinces on lease applications and monitoring aquaculture activities. Furthermore, the application of habitat policy needs to be refined with respect to dealing with potential interactions of aquaculture and the environment within a framework of risk analysis. The policy also needs to be applied in an equitable manner to aquaculture and other sectors such as commercial and recreational fisheries.

In cases where aquaculture activity augments tonnage (production) of fish and shellfish, and where aquaculture contributes to the productive capacity of lakes and oceans, the contribution of aquaculture to total fish production should be recognized. Current DFO habitat policy is limited to protecting habitat in support of "natural" productive capacity for the commercial, recreational and subsistence fisheries. Also, the concepts of "no net loss" and "net gain" need to be clarified to take into account the contribution of aquaculture to productive capacity.

b) Navigable Waters

Most suspension (floating) aquaculture structures require approval pursuant to section 5(1) of the *NWPA* as they have the potential to significantly interfere with navigation.

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[19] *The Department of Fisheries and Oceans Policy for the Management of Fish Habitat*, published by the Communications Directorate, Ottawa, DFO/4486.

In view of industry expansion, the workload and decision-making responsibility under the *NWPA* has increased substantially resulting in delays in obtaining decisions on requests for approvals. Updated guidelines are required, and, over the longer term, regulations may be needed to assist field staff in efficient and consistent decision-making.

Through proposed amendments to the *NWPA* or administrative changes, the Canadian Coast Guard (CCG) is actively working to streamline and clarify review processes and to improve measures to ensure compliance with conditions once approvals have been granted.

The term of a section 5(1) approval for aquaculture is currently five years. This does not take into account that investments in aquaculture operations require a long term for a return to be made. To address this, the term of approvals should be extended to assure investors and financiers that the lease is a secure asset, as long as the aquaculturist meets the lease conditions.

c) Allocation of Aquatic Space

There is considerable competition for the use of public waters among various groups, including recreational boaters, fishers, aquaculturists, shippers, offshore oil and gas developers, etc. Integrated coastal zone management is one means whereby long-term, balanced decisions could be made on the use of coastal and open sea areas, including use for aquaculture and enhancement purposes. The time frame for implementation of an effective mechanism for integrated coastal zone management, however, is lengthy. To meet the current needs of the aquaculture sector, the Commissioner does not consider it acceptable to wait for the implementation of a system of coastal zone management. He also considers that the lack of guidelines to assist operational staff with resource allocation decisions is delaying the decision-making process and constraining growth in the sector.

d) Introductions and Transfers of Aquatic Organisms

The aquaculture industry needs access to high quality broodstock and appropriate policies for the introduction and transfer of aquatic organisms to enhance its international competitiveness. In aquaculture, as in conventional livestock farming, selective breeding programs are used to generate better performing stocks. A number of other countries are ahead of Canada in developing high-performance broodstock

lines. Canada's industry needs access to these lines. The importation of broodstock into Canada is being delayed by a lack of clear policies and the lack of a risk management approach for introductions and transfers.

For industry, this has resulted in delayed and inconsistent decisions and has impaired competitiveness. The lack of a clear policy framework may result in applications for introductions that contain insufficient information for decision-making, resulting in delayed decisions and multiple reviews of a single request.

A federal-provincial-territorial Task Group on Introductions and Transfers was created under the CCFAM. The task group is working to finalize a national code on deliberate introductions and transfers of aquatic organisms, including a comprehensive risk assessment process and a mechanism to arbitrate disputes related to introductions and transfers affecting more than one province or territory. To provide the aquaculture industry with good access to high quality broodstock, there is an immediate need to finalize the national introductions and transfer code within a framework of analysis and management of related risks.

e) Aquatic Animal Health

The current Canadian program for aquatic animal health is not complete and does not operate efficiently. This also has had a negative effect on industry productivity and competitiveness. For the farming of terrestrial animals, Canada has a national animal health program. It is a conclusion of this review that there is an urgent requirement to extend this same comprehensive approach to aquaculture, including such measures as:

- modernized Fish Health Protection Regulations (FHPR);
- a quality control/quality assurance program for the FHPR;
- a national surveillance program for fish disease in both wild and farmed species;
- an emergency response program for handling new disease problems; and
- ongoing research into pathogens and disease control.[20]

The issue of aquatic animal health is also being reviewed by the CCFAM Task Group on Aquaculture. There is a need to ensure consistency between any recommendations

[20] Two other essential components are considered as separate issues: (1) authorities for eradication of diseased fish and compensation for eradication measures; (2) access to therapeutants. A discussion of these issues follows.

agreed to by the CCFAM and any actions that may be taken by the federal government with respect to aquatic animal health.

Such measures would have a positive effect on the Canadian aquaculture industry and would assist the federal government in meeting its mandates for protecting international trade and fish resources.

f) Authorities for Eradication of Aquatic Animals and Related Compensation

The Commissioner regards the ability to order eradication of diseased fish and to compensate owners for costs related to eradication as critical to effective animal health management. While the Canadian government has a program for managing terrestrial farm animal eradication and compensation, it does not include farmed aquatic animals. Legal mechanisms currently exist to provide for such authorities, but implementation depends on securing fiscal resources and on interdepartmental coordination. In developing measures, the special characteristics of fish farming and the current understanding of fish pathogens and disease control must be considered. While the *Health of Animals Act* and its regulations currently contain provisions for "other" animals and non-specified pathogens, in the longer term, regulations specifically for aquatic animals may be required.

g) Access to Therapeutants

Access to an adequate range of therapeutants is an important component of effective fish health management. In Canada, aquaculturists have access to a much more limited range of registered products than does the industry in leading aquaculture producing countries such as Norway. The lack of access in Canada to the same range of therapeutants available in major producing nations is a further factor that has a negative effect on development of Canadian fish farms.

The Canadian aquaculture sector represents a small market to manufacturers of therapeutic agents[21] and the cost associated with generating the necessary data to support product registration in Canada is often in excess of potential returns from their production and sale. One option to promote additional product submissions for

[21] The industry is small and the use of therapeutants is limited in scope when compared to some other food production sectors. Due to concerns about the effects on the environment, consumer perception and costs, aquaculturists are not using drugs for disease prevention or for growth promotion.

registration would be to establish a funding program for data collection for strategically important products. This would require additional fiscal resources.

h) Appropriate Application of Fisheries Management Authorities to Aquaculture Activities

Aquaculture was not a significant activity when the Constitution and the present legislation and regulations for fisheries were developed and the legislative regime was not drafted with aquaculture activities in mind. Further, there is very little case law that deals with how the existing legislative regime applies to aquaculture activities. This means that the interpretation of how current legal measures apply to aquaculture is complicated and uncertain.

Clear policy statements would be of great assistance to guide interpretation of fisheries law. In particular, interim guidelines are needed to clearly indicate when fishery regulations that apply to the wild fisheries should also apply to aquaculture activities. These guidelines could well form the basis for a new legislative regime for aquaculture activities.

At present, this issue arises primarily with respect to shellfish culture in the Maritime provinces. While regulatory measures under the *Fisheries Act*[22] allow DFO to properly control the public fishery and manage populations of wild stocks, applying these same measures to aquaculture activities is not appropriate given the private ownership of farmed animals.

i) Access to Wild Fish Resources for Aquaculture Purposes

The aquaculture industry requires access to certain wild stocks for the purposes of research, broodstock supply, and grow-out activities. Currently, DFO can allocate fish resources for various purposes, including aquaculture. However, there is no clear national policy with respect to the allocation for aquaculture purposes.

[22] A number of regulations have been enacted under the *Fisheries Act* for the purpose of conserving and managing the public fishery. These include, among others, the Maritime Provinces Fishery Regulations (MPFR), the Atlantic Fishery Regulations (AFR) and the Pacific Fishery Regulations (PFR). They contain provisions that set minimum size standards for harvest of animals, types of gear that may be used for fishing, fishing seasons, etc. Some of these regulations (e.g. the PFR) specifically state the regulations do not apply to farming activities and products. Others such as the MPFR and AFR do not specifically do so.

Lack of access to wild fish resources for broodstock and limited access to juveniles is a hindrance to research, development and subsequent commercialization of new species for farming in Canada. While access to wild seedstock for shellfish operations has not been a problem to date, more certainty regarding access is required to protect investments and to encourage future investment in aquaculture.

j) Shellfish Food Safety Programs

The Canadian Shellfish Sanitation Program (CSSP) was developed in 1925 to ensure that all shellfish growing areas meet approved water quality criteria, that pollution sources to these areas are identified and that all shellfish sold commercially are harvested and handled in an approved manner.

Some growing areas and some shellfish activities and products[23] have good potential for shellfish aquaculture production, but are not covered under the Canadian Shellfish Sanitation Program (CSSP). Lack of government fiscal resources or alternative implementation mechanisms to support these activities and products is impeding expansion of the shellfish sector.

A strengthened shellfish food-safety monitoring program is needed to assist the expansion of shellfish aquaculture. The CSSP, including programs to monitor water quality and test for biotoxins, has been maintained by the federal government since the 1940s. All harvest of certain species of shellfish[24] must come from coastal areas covered by these programs, but the extent of these areas and an increase in their size has been limited for a variety of reasons. Given finite resources and expanding requirements for service, more efficient methods of service delivery for these programs are required.

k) Enhancement and Sea Ranching of Public Stocks

Enhancement/sea ranching of public stocks could significantly increase harvesting opportunities for traditional fisheries, generate new opportunities for the fisheries and aquaculture supply industries, and improve the cooperation and linkages between the fisheries and aquaculture sectors.

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[23] Activities include the production from areas that may be opened for cultivation under certain conditions. These areas may be subject to fecal contamination for short periods, but can otherwise produce quality products safe for human consumption. Specialized crops include products such as whole scallops, which require additional testing to ensure safety.

[24] These include filter feeding organisms such as clams, geoducks, mussels, oysters, and scallops.

The current regulatory framework does not contain any policy or specific provisions to encourage the enhancement and sea ranching of public stocks. It is a conclusion of this review that an effective enhancement strategy should be developed and supported through appropriate policy and regulatory changes. Development of enhancement opportunities should be initiated with sessile shellfish such as scallops and clams because their management is much simpler than that of mobile species. Our analysis indicates that the policy and regulatory authorities that would be required to enable both finfish and shellfish enhancement activities would be similar.

4.3 A Summary of the Impacts of the Current Legislative and Regulatory Environment

In summary, the Commissioner found that the lack of a comprehensive legislative and regulatory framework for aquaculture is having the following effects on the industry:

1. There is a significant reduction in the ability of existing firms, particularly small and medium-sized enterprises, to:

- expand;
- develop new product lines;
- obtain financing and attract investment;
- minimize costs; and
- at times, defend the reputation of their products.

2. Expansion of aquaculture production is impeded because of delays in approval of new growing sites, which results in missed opportunities for economic activity and job creation.

3. The uncertain legislative and regulatory environment also has an impact on the federal government by affecting its ability to meet its legislative and regulatory obligations in terms of:

- establishing appropriate policies;
- prioritizing use of resources; and
- carrying out operational duties.

5. Approaches to Environmental Management and Protection

Environmental management and protection have been identified as areas of concern to the aquaculture sector and to other interest groups. As part of the legal review a federal "Environmental Management and Protection Working Group" was established to investigate the current regime and propose a more comprehensive and effective approach for assessing, managing, and communicating the environmental risks associated with aquaculture within a context of sustainable development (see Annex II). Legal measures (legislation and regulations) and voluntary non-regulatory initiatives were considered. The stated objective was to promote sustainable aquaculture development, that is, an aquaculture industry that is both environmentally sustainable and economically viable.

Five general categories of environmental issues were considered:

1. direct environmental effects from aquaculture (e.g. farmed fish escapes and waste discharge);
2. environmental effects of other industries on aquaculture (e.g. effluent effects on water quality);
3. biological effects on other animals (e.g. migratory birds, marine mammals and species at risk);
4. human health effects (food safety); and
5. related or secondary effects (e.g. access to sites and potential user conflicts).

The following were considered to be essential characteristics of an effective environmental management approach:

- *streamlined*—creating an efficient and timely regime through greater coordination;
- *predictable and transparent*—providing greater clarity and certainty for all participants in the process;
- *anticipatory*—placing emphasis on early planning and coordination to prevent or mitigate problems before they occur;
- *integrated and complementary*—ensuring that the environmental management and decision-making responsibilities of federal and provincial departments, with respect to aquaculture operations, are consistent and mutually reinforcing; and
- *science-based*—using the best science available and promoting scientific research and innovation.

The Commissioner concluded that an effective and efficient environmental management regime could be developed using the following four-point process:

1. **Clarify and make existing legal measures more transparent, with respect to sections 35 and 36 of the *Fisheries Act* as applied to aquaculture operations.**
2. **Explore and develop opportunities for industry-led, voluntary, non-regulatory initiatives (e.g. in the areas of fish containment protocols and operating codes of practice).**
3. **Explore and develop class screenings, within the provisions of the *CEAA*, as a means to bring a greater measure of predictability, consistency, and timeliness to the environmental assessment process. For each class of aquaculture projects, a detailed assessment should be conducted, including mitigation measures. Project applications would be reviewed on the basis of the designated report and only site-specific factors would subsequently need to be addressed.**
4. **The concept of a "single window" or coordinated approach to environmental assessment was deemed to have merit, especially if the process is built around a single, comprehensive review procedure covering environmental review and management, site selection and design criteria, operating conditions, compliance standards, and monitoring and reporting requirements.**

6. Objectives for a New Legal Framework

The Commissioner considers that the government has a responsibility to create an economic and regulatory environment in which the aquaculture sector can effectively operate, while protecting the broader public interest. The current uncertain and inappropriate legislative and regulatory environment is hindering the development of a sustainable aquaculture sector in Canada, as well as hindering the federal government's ability to fulfil its constitutional responsibilities in an efficient manner. It is also clear that swift resolution of this situation will enhance the competitiveness of the Canadian aquaculture sector in the global marketplace.

With this in mind, he has identified a number of initiatives as developing principles for a new legal framework for the Canadian aquaculture sector. To accomplish these goals, the legislative and regulatory environment was analyzed. Based on this analysis, a number of specific recommendations have been developed to improve the regulatory environment in which the sector operates. These initiatives and recommendations are presented in sections 7 and 8, respectively.

6.1 Initiatives Identified for the Legal Review

6.1.1 Federal initiatives

The Commissioner has identified seven principal federal initiatives to assist the aquaculture sector with its sustainable growth and development, and to facilitate fulfilment of the government's regulatory responsibilities. They are:

1. To enact specific provisions in laws or regulations that deal with aquaculture.
2. To recognize aquaculture as a legitimate user of aquatic resources (i.e. land, water, and ocean space).
3. To provide the aquaculture sector with a legal framework that will:
   - enable the sector to develop on a long-term basis with clear, transparent rules and flexibility;
   - enable the sector to evolve and to adapt to change;
   - fulfil health, safety, and environmental protection objectives; and
   - enable the sector to be internationally competitive.
4. To establish an integrated regulatory regime and identify and eliminate, where appropriate, regulatory constraints to aquaculture development.

5. To identify and seek to remove any unnecessary or inappropriate duplication in legislation and regulations.
6. To identify and remove, where appropriate, any undue policy or enforcement policy constraints to aquaculture development.
7. To identify legislative gaps and seek to fill them.

6.1.2 Initiatives for Proposed Federal-Provincial-Territorial Cooperation

The Commissioner proposes the following initiatives to promote cross-jurisdictional cooperation in support of the aquaculture sector:

1. Provide principles in support of a process to coordinate federal, provincial, and territorial regulatory initiatives.
2. Agree upon a harmonization process that will:
   - clarify and delineate roles and responsibilities between the two levels of government;
   - ensure that where there are shared jurisdictions, initiatives are consistent and complementary; and
   - promote the development of provincial/territorial legal frameworks in concert with the federal legal framework.

7. Action Plan

In view of the factors outlined in Section 1.2, it is recommended that the development and implementation of a renewed legal framework for aquaculture be divided into three components (Table 2):

1. undertaking "priority initiatives" immediately (see Section 8);
2. undertaking a harmonization process in cooperation and agreement with the provinces and territories immediately;
3. undertaking substantive legislative changes over the longer term.

Immediate action should be focused on priority initiatives and federal-provincial-territorial harmonization, including clarification and delineation of respective roles and responsibilities. Three scenarios have been developed to achieve fundamental legislative, regulatory, and policy amendments related to aquaculture (see Section 7.2 and 7.3), which would address the gaps remaining after the priority initiatives are implemented. These more profound modifications should be the object of a second phase of the legislative and regulatory review process.

Table 2: Priority Initiatives and Subsequent Scenarios Proposed for the Aquaculture Legal Review

Priority Initiatives for the Federal Government	Federal-Provincial-Territorial Harmonization	
❍ New regulations and regulatory amendments ❍ Policy amendments to accommodate aquaculture ❍ Inclusion of aquaculture in DFO's mandate	❍ Launch permanent CCFAM Task Group for ongoing coordination and cooperation for legal and regulatory matters	
Longer-term Undertaking of Substantive Legislative Changes (Phase Two)		
❍ *Aquaculture Act* and regulations with consequential amendments to other acts	❍ Amendments to federal legislation* and regulations to incorporate aquaculture ❍ Consequential amendments to other acts * e.g. *Fisheries Act, Real Property Act*.	❍ Status quo—no federal legislative change ❍ Explore the possibility of transferring administrative functions to the provinces

Initiatives identified by the Commissioner as priorities relate to issues that currently compromise the government's ability to appropriately monitor and regulate the sector, including matters such as clarifying the way aquaculture and fisheries are to be dealt with and amending other fragmented and outdated legislation and regulations.

7.1 Federal-Provincial-Territorial Harmonization Process

In keeping with the CCFAM's *Agreement on Interjurisdictional Cooperation With Respect to Fisheries and Aquaculture*[25], a federal-provincial-territorial harmonization process is also proposed to identify and pursue opportunities where increased efficiency, effectiveness and streamlining may result in mutually beneficial improvements for both levels of government. Such matters must be addressed irrespective of other initiatives contemplated for the aquaculture legal framework.

7.2 Legal, Policy, and Program Gaps Not Addressed by the Priority Initiatives

The priority initiatives will help address a number of issues that have constrained growth in the Canadian aquaculture industry. While resolution of these is critical to the sustainability of the aquaculture sector, it is the Commissioner's conclusion that more fundamental legislative change will be required to ensure long-term sustainable growth and development. A number of gaps in legislative authority also need to be resolved and will require legislative amendments, which are outlined below. These elements should be dealt with in Phase Two of the legal review.

7.2.1 General

- At the federal level, there is no definition of "aquaculture" in the legislation.
- Parliament's authority to approve regulations for "aquaculture" requires clarification.

Distinguishing aquaculture and fishery activities under federal laws

- The absence of a definition for aquaculture under the existing *Fisheries Act* causes confusion as to when various provisions of the *Fisheries Act* relating to fisheries do and do not apply to specific aquaculture activities. For example, clarification should be sought as to when, and if, aquaculture activities come within the scope of the following provisions of the *Fisheries Act*: the protection provided for gear and leases (s. 23), including the prohibition against others fishing in a leased area;

[25] The CCFAM *Agreement in Interjurisdictional Cooperation With Respect to Fisheries and Aquaculture* is available from Fisheries and Oceans Canada's Communications Directorate in Ottawa.

general offence and punishment provisions (sections 62 to 70); offences relating to obstruction and giving false information (sections 78 to 86); and application of the *Fisheries Act* to the open seas (section 87). Where necessary, the enactment of corresponding statutory protections for aquaculture activities should be considered.

- Consideration should be given to new provisions to deal with such matters as the delineation and protection of aquaculture activities from interactions with traditional fisheries, the issue of ownership of non-farmed species on leased areas, the problem of predator species at aquaculture sites, and the recognition and implementation of the public's right of access for complementary activities such as navigation and fishing.

- There is a lack of clarity regarding the responsibility for enforcement in relation to theft from aquaculture operations (for example, between DFO and the RCMP).

Developmental Programs for the Aquaculture Sector

- The federal government should implement and, if necessary, provide a legal foundation for industrial and business support programs for aquaculture.

7.3 Legislative Options—Scenarios A, B, and C (Phase Two)

The Commissioner has identified three options to address the legal gaps referred to above:

1. Enactment of a new and comprehensive federal *Aquaculture Act*;
2. Enactment of comprehensive amendments to existing legislation (the *Fisheries Act, Fisheries Development Act, Oceans Act*) along with the enactment of comprehensive aquaculture regulations and consequential amendments to other federal legislation; and
3. Maintaining the *status quo* (i.e. priority initiatives and federal-provincial-territorial harmonization initiatives), accompanied by the transfer of administrative functions to the provinces and territories.

7.3.1 New legislation

The gaps in federal authorities could be addressed through a new *Aquaculture Act*.

Advantages

- Allows the federal government to set out, in one statute, a legal framework that addresses the needs of the aquaculture sector.
- Provides confidence to stakeholders that their concerns are addressed.
- Provides the federal government with the ability to address future needs of this evolving sector.
- Provides a clear mandate for aquaculture and a clear departmental lead.
- Allows the federal government to state, in legislation, its intent with respect to aquaculture and its role in the sector.
- Allows the federal government to clearly set out how its authorities apply to aquaculture, fisheries, and the combination of the two activities.

Disadvantages

- Potentially long and complex process.
- With a rapidly-evolving industry, legislation may quickly become outdated.

7.3.2 Amendments to existing legislation

It may be possible to address the gaps in federal authorities through amendments to existing legislation, including the *Fisheries Act* and/or the *Fisheries Development Act*.

Advantages

- May provide an integrated approach within the traditional fishery statutory framework.
- Apart from dealing with aquaculture separately in one statute, it has the advantages mentioned in Section 7.3.1 with respect to a new aquaculture bill.

Disadvantages

- Potentially long and complex process to amend existing legislation.
- Difficulty in completing amendments to the *Fisheries Act* in a timely fashion.
- Potentially complex process to clarify those sections of the act that apply to fisheries, to aquaculture, and to both sectors.
- Given that the legislative and regulatory framework required for aquaculture is different from that required for the traditional fishery, there may be little synergy in combining the two.

7.3.3 Status quo

This option would mean that the current lack of legal and regulatory provisions relating specifically to aquaculture in federal legislation would continue. In this case, consideration could be given to using Section 9 of the *Oceans Act* to extend the application of provincial laws beyond the low-water mark. Alternatively, the possibility of renegotiating the existing MOUs on aquaculture could be explored with the intent to transfer more administrative functions pertaining to aquaculture to the provinces.

Advantages

- No requirement for federal legislative amendments.

Disadvantages

- The treatment of aquaculture would not be consistent with the federal approach to other resource-based activities, including farming, mining and forestry.
- Many provinces do not have the infrastructure or fiscal resources to take on responsibilities in relation to research programs, such as for fish health, and support programs such as veterinary and extension services, which are needed for aquaculture.
- May not adequately address federal responsibilities over fisheries, fish habitat, the oceans, and international and inter-provincial trade in relation to aquaculture.
- An opportunity to capitalize on the synergy between aquaculture and traditional fisheries may be lost, specifically in terms of using culture technologies to increase fisheries production.

8. Recommendations for a Federal Framework

Based on his analysis of the issues and of possible solutions, the Commissioner has developed a series of recommendations.

8.1 Recommendations Related to the Legislative and Regulatory Environment

8.1.1 Definition of aquaculture

1. Adopt a working definition of aquaculture to facilitate decision-making with regard to enforcement of existing legislation and regulations as they relate to aquaculture, and to clarify program activities and assist policy makers in considering the need for and development of a new legal framework that appropriately deals with aquaculture activities and wild fisheries.

8.1.2 Stability of operations

2. Establish an appropriate legal framework for aquaculture,[26] with clearly stated legal rights and obligations in relation to the possession of an aquaculture lease or licence, that deals with such matters as: transfer of leases, licences and permits; property rights related to production species and other sessile organisms on a lease; the control and avoidance of predators; interaction with navigation activities by others; and appropriate protection from other activities that would have a negative impact on the aquaculture operation. Development policies that engage proprietary interests may require coordinated implementation at the provincial and territorial level.

3. While the new legal framework for aquaculture is being developed, establish a clear policy on existing legal rights and obligations of aquaculturists.

4. Task a special DFO working group, including CCG, OCAD, and others and which would involve the aquaculture industry, to determine the rights and responsibilities regarding navigation on an aquaculture lease by those other than the lease holder.

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[26] This analysis on the long-term approach to ensuring an appropriate legal framework is not complete. For an analysis of options see Section 7.2.

This task could be added to the mandate of the DFO working group that has been established to examine the use of the Boating Restriction Regulations.[27]

5. Develop long-term stability of operations by significantly increasing the duration of approvals for leases, licences, permits and other authorizations. As a result of this review, a target of 20 years is being recommended. However, further analysis is required in this regard.

6. Analyze the need for additional legislative and regulatory provisions to aid the federal government in issuing and administering leases and licences.

8.1.3 Risk management

7. Develop a general policy to require the incorporation of appropriate risk management for decision-making in all policies related to aquaculture.

8.2 Recommendations Related to Specific Legislative and Regulatory Authorities

8.2.1 Environmental management and protection measures, including environmental assessments and section 36 of the Fisheries Act

8. Continue, on an urgent basis, to improve the coordination of environmental management policies and initiatives among the many different federal departments and agencies, providing guidelines and standards where appropriate. These policies and initiatives should be standardized with the provinces to create a more efficient, predictable, and timely federal review and approval process.

9. Over the longer term, extend the notion of more streamlined, efficient processes to a more formalized "single window" approach for the review of aquaculture proposals. This "single window" could encompass relevant federal, provincial and territorial standards, guidelines, and other criteria covering the entire life cycle of

[27] This working group has been established within DFO to look at navigational issues with respect to environmental protection, but its work could be extended to include issues with respect to protection of aquaculture operations.

an aquaculture project—from site selection and design criteria, to operating guidelines or codes, to decommissioning provisions.

10. Assign a special task group to develop an interim approach to assist field officers and industry in meeting *CEAA* requirements while developing long-term requirements for *CEAA* assessments.

11. Implement a strategy to develop, in a timely fashion, a consistent approach to the application of the CEAA across the country. This should include development of class screening models for efficient and effective application of the *CEAA* process.

12. Task a special working group, led by Environment Canada, to analyze the type of regulatory framework that could be developed under section 36 of the *Fisheries Act* with respect to mitigative measures required in relation to the deposit of deleterious substances from aquaculture operations in waters inhabited by fish. This should include consultation with the aquaculture industry throughout the course of this work.

8.2.2 Fish habitat protection

13. Refine the application of the DFO habitat policy with respect to section 35 of the *Fisheries Act*, including authorizations for aquaculture operations, by managing the potential interactions of aquaculture and the environment within a framework of risk analysis and management, and ensure that there is a level playing field for aquaculture in relation to other development sectors such as commercial and recreational fisheries. In addition, there is a need for operational policies to support the application of the DFO habitat policy to aquaculture.

14. Recognize, in policy, the contribution of aquaculture to productive capacity of aquatic resources in relation to the application of section 35 of the *Fisheries Act*.

8.2.3 Navigable waters

15. Amend the *NWPA* to streamline the review process and modernize the compliance and enforcement regime with regard to aquaculture.

16. Develop national guidelines for aquaculture works to facilitate decision-making with respect to site approvals, site marking, and site design requirements; evaluate the benefits of including these guidelines in regulations under section 12 of the *NWPA*.

17. Amend the Schedule to the Navigable Waters Works Regulations to increase the duration of approvals for aquaculture works and sites under section 5(1) of the *NWPA*. The recommendation is a duration of 20 years. Further analysis, in conjunction with the CCG, will be required.

8.2.4 Allocation of aquatic space

18. Develop and implement a national model for integrated coastal zone management, beginning with pilot projects that would include aquaculture along with other user groups and activities.

19. Task a special ADM Working Group to develop, on an urgent basis, national guidelines and operational policies for decision-making regarding allocation of aquatic space for aquaculture purposes.

8.2.5 Introductions and transfers of fish

20. Finalize and implement a National Introductions and Transfers Code for Aquatic Organisms, consistent with recommendations arising from the CCFAM.

8.2.6 Aquatic animal health

21. Finalize amendments to the Fish Health Protection Regulations (FHPR) to reflect the needs of the evolving aquaculture sector.

22. Assign a special task group to oversee the development and implementation of a comprehensive approach to aquatic animal health management in collaboration with industry and veterinarians involved in aquatic animal health. This approach should include: (1) modernizing the FHPR; (2) good laboratory management practices for the FHPR; (3) surveillance programs to determine the status of pathogens in wild and farmed fish stocks; (4) an emergency response program for handling novel disease challenges; and (5) ongoing research into pathogens and

disease control.[28] The work should take into consideration health of finfish and shellfish.

8.2.7 Authorities for eradication of aquatic animals and related compensation

23. Negotiate an MOU between DFO and the CFIA, pertaining to the application of authorities for ordered eradication and related compensation for eradication of aquatic animals.

24. As part of the MOU, support the development of regulations under the *Health of Animals Act* to enable the authorization of eradication orders and compensation for aquaculture stocks.

8.2.8 Access to therapeutants

25. Facilitate the development and implementation of a program to assist with data collection to support registration of strategically important therapeutant products for aquaculture.

8.2.9 Appropriate application of fisheries management authorities to aquaculture activities

26. Immediately develop a policy to guide the application and enforcement of existing fisheries regulations.

27. In particular, give priority to amending regulations to remove inappropriate controls over aquaculture operations such as harvest seasons and restrictions on gear, and size at harvest that were established to manage the wild fishery.

28. Clarify the policy regarding proprietary interests and rights over aquaculture stocks in production and seek legislative amendments that may be required.

29. Develop a comprehensive and integrated policy to (i) subject aquaculture activities and wild fisheries to the same regulatory regimes when it is appropriate to do so

[28] Two other essential components are considered as separate issues: (1) authorities for eradication of diseased fish and compensation for eradication measures (Section 8.2.7); (2) access to therapeutants (Section 8.2.8).

and (ii) establish new regimes, as appropriate, for aquaculture activities that are different from the wild fishery. As this policy develops, create statutory and regulatory provisions necessary to support and implement the policy.

30. Conduct further legal analysis and design an appropriate legal framework for implementing the chosen policies through amendment of current legislation/regulations and/or new legislation/regulations.

8.2.10 Access to wild fish resources for aquaculture purposes

31. Amend the existing draft policy on Access to Aquatic Resources for Aquaculture to provide formal access to wild resources for aquaculture purposes, such as broodstock and seedstock collection.

8.2.11 Shellfish food safety programs

32. Task a special subcommittee of ADMs from Environment Canada, CFIA, and DFO to analyze the efficiency and efficacy of the current tripartite administration and delivery of the CSSP and to determine if improvements can be made in services governing food safety.

33. Review and consider the implementation of the recommendations of the joint federal government-industry Shellfish Water Quality Monitoring Committee with respect to new ways of service delivery.

8.2.12 Enhancement and sea ranching of public stocks

34. Develop a policy, program, legal framework, and reinforced management agreement, including licence fees, to support the enhancement of public stocks of fish and shellfish in an effort to use aquaculture technologies to increase the productive capacity of Canadian fisheries.

8.3 Recommendations Related to the Federal-Provincial-Territorial Harmonization Process

35. It is recommended that the CCFAM Task Group on Aquaculture establish a formal mechanism, such as a permanent standing committee for ongoing coordination and cooperation between the two levels of government, for the purpose of discussing

and resolving legal and regulatory issues, and determining administrative responsibilities, as may be required; removing overlap and duplication; and addressing any gaps in the federal, provincial and territorial legal frameworks.

36. It is also recommended that the opportuneness of amending the existing federal-provincial-territorial aquaculture MOUs be analyzed. The objective of this exercise would be to clarify and delineate roles and responsibilities between the two levels of government, and ensure that administrative responsibility rests with the level of government most capable of effective service. Where there is shared jurisdiction, initiatives should be consistent and complementary.

This document contains views and recommendations arrived at by the Commissioner for Aquaculture Development.

Annexes — Table of Contents

Annex I— Table of Recommendations for Priority Initiatives

Annex II— Organization Chart for the Legal Review

Annex III— Reference Papers

Annex IV— Legislation and Regulations Pertaining to Aquaculture

Annex I — Table of Recommendations for Priority Initiatives

Definition of Aquaculture 1. Adopt a working definition of aquaculture to facilitate decision-making with regard to enforcement of existing legislation and regulations as they relate to aquaculture, and to clarify program activities and assist policymakers in considering the need for, and development of, a new legal framework that appropriately deals with aquaculture activities and wild fisheries.	**Definition of Aquaculture** The application of the existing legislative framework in relation to aquaculture activities needs clarification. A "working definition" to distinguish aquaculture activities from traditional, wild fisheries may be a useful tool both to provide clarity and to assist in the development of a new and appropriate legislative scheme that deals with aquaculture activities and wild fisheries in an appropriate manner.	Policy
Stability of Operations 2. Establish an appropriate legal framework for aquaculture,[1] with clearly stated legal rights and obligations in relation to the possession of an aquaculture lease or licence, that deals with such matters as transfer of leases, licences and permits; property rights related to production species and other sessile organisms on a lease; the control and avoidance of predators; interaction with navigation activities by others; and appropriate protection from other activities that would have a negative impact on the aquaculture operation. Development policies that engage proprietary interests may require coordinated implementation at the provincial and territorial level.	**Stability of Operations** It usually takes several years for aquaculture operations to generate a return on the initial investment. To become established, the businesses require leases that last for a period that is relevant to the commercial activity being carried out, and rational, transparent regulatory regimes. Yet, it has been unclear what rights and obligations aquaculturists have under the existing legislative and regulatory regime, and how these rights and obligations are upheld and enforced.	Policy and/or Regulatory and/or Legislative

[1] The analysis on the long-term approach to ensuring an appropriate legal framework is not complete. For an analysis of options see Section 7.2.

3. While the new legal framework for aquaculture is being developed, establish a clear policy statement on existing legal rights and obligations of aquaculturists.		
4. Task a special Department of Fisheries and Oceans (DFO) working group, including the Canadian Coast Guard (CCG), the Office of the Commissioner for Aquaculture Development (OCAD), and others, and which would involve the aquaculture industry, to determine the rights and responsibilities regarding navigation on an aquaculture lease by those other than the lease holder. This task could be added to the mandate of the DFO working group already established to examine the use of the Boating Restriction Regulations.[2]	Uncertainty also exists regarding public rights of access to waters near aquaculture sites, prevention of interference with aquacultural activities by other users of aquatic resources, ownership of non-farmed species on leased areas, and the problem of managing natural predators at aquaculture sites. Decisions related to authorizations for interference with navigation under the *NWPA* and advice on interactions with fisheries are particularly important to the allocation of aquatic space. With respect to navigation, it is clear that an aquaculture site will not be approved if it is in the middle of a major navigation channel. There are, however, no clear and precise policies to determine when an interference with navigation is acceptable, or whether, to what extent and what kind of effect on a wild fishery is acceptable.	Policy and/or Regulatory
5. Develop long-term stability of operations by significantly increasing the duration of approvals for leases, licences, permits and other authorizations. As a result of the review, a target of 20 years is being recommended. However, further analysis is required in this regard.	Part of the uncertainty relates to the lack of long-term security for various forms of authorization and licensing of aquaculture activities. This is a deterrent to private investment in aquaculture.	Regulatory and/or Legislative

[2] This working group has been established within DFO to look at navigational issues with respect to environmental protection, but its work could be extended to include issues with respect to protection of aquaculture operations.

6. Analyze the need for additional legislative and regulatory provisions to aid the federal government in issuing and administering leases and licences.	The lack of a clear federal leasing policy and regulations (or delegation of administrative responsibilities to the provinces) impedes development of the aquaculture sector, particularly as interest increases in developing areas further offshore.[3]	Regulatory and/or Legislative
Risk Management 7. Develop a general policy to require the incorporation of appropriate risk management for decision-making in all policies related to aquaculture.	**Risk Management** Incorporation of a risk management process in policy and regulations and a clear approach to the precautionary principle are essential for effective decision-making related to aquaculture. The absence of these important policies has had a negative impact on attracting investment to the sector and on the competitiveness of the aquaculture industry in Canada. The application of the precautionary principle remains a matter of discussion within the federal government. Consequently, the absence of a single, agreed-upon definition of the precautionary principle as it applies to aquaculture, has resulted in inconsistent and sometimes arbitrary decisions being taken by the federal government, notably with respect to the introductions and transfers of aquatic organisms. It is a conclusion of this review that the federal government should determine how the principle is to be applied to aquaculture.	Policy

[3] Currently, there is no federal-provincial agreement on who has jurisdiction over the seabed.

	There is a long history of the use of risk management in regulating many areas including food safety, therapeutant approvals, fisheries management and the application of the *Canadian Environmental Assessment Act*. Risk assessment is used to determine the nature and degree of risk. The assessment process must be objective and based on sound science, with only secondary consideration being given to non-scientific information. Risk management involves identifying and developing mitigation measures and the communication of the risks and their management to a wider audience. Risk management is used to develop and implement appropriate interventions and must take into consideration other matters beyond science including social, economic, cultural, political, and policy considerations.	

	Using risk management in combination with a defined precautionary approach offers decision-makers powerful, mutually reinforcing tools that support sustainable development. Both essentially involve making better decisions under conditions of imperfect information. If they are applied to aquaculture, they aim at reducing the likelihood of unacceptable outcomes by adopting measures and practices that take into account uncertainties related to specific operations and the potential of risks to the environment. To objectively identify the nature and degree of risk associated with aquaculture, it is essential that risk assessment and management be incorporated into all review processes with respect to aquaculture activities. In addition, the government needs to develop a consistent federal approach to the application of the precautionary principle.	

Environmental Management and Protection Measures, including Environmental Assessments and Section 36 of the *Fisheries Act*	**Environmental Management and Protection Measures, including Environmental Assessments and Section 36 of the *Fisheries Act***	Policy
8. Continue, on an urgent basis, to improve the coordination of environmental management policies and initiatives among the many different federal departments and agencies, providing guidelines and standards where appropriate. These policies and initiatives should be standardized with the provinces and territories, to create a more efficient, predictable, and timely federal review and approval process.	The fundamental challenge is to ensure that the current broad and varied spectrum of federal measures works more efficiently, consistently, and fairly. The aquaculture industry faces a number of sometimes overlapping requirements in terms of environmental measures at both the federal, provincial and territorial level, leading to extra costs, delays, and considerable confusion for both industry and government. Currently, there are few standards or guidelines for proponents to follow when planning and implementing an aquaculture venture. The absence of formal guidelines for decision-making leads to delays, inconsistent interpretation of regulations and inconsistent decisions.	
9. Over the longer term, extend the notion of more streamlined, efficient processes to a more formalized "single window" approach to the review of aquaculture proposals. This "single window" could encompass relevant federal, provincial and territorial standards, guidelines, and other criteria covering the entire life cycle of an aquaculture project, from site selection and design criteria, to operating guidelines or codes, to decommissioning provisions.	The *Canadian Environmental Assessment Act* (*CEAA*) provides the basis for consideration of the potential environmental effects of proposed aquaculture operations that require a federal decision, such as approval under the NWPA, or federal funding. As well, the Federal Coordination Regulations under the act ensure that only one federal environmental assessment is conducted for a proposed project. Through its bilateral agreements on harmonization, *CEAA* also provides a link to provincial environmental assessment processes.	Policy

	However, in addition to the *CEAA* and provincial environmental assessment requirements, there is a range of federal policies, regulations, and legislation in place that address specific environmental components or issues.	
10. Assign a special task group to develop an interim approach to assist field officers and industry in meeting *CEAA* requirements while developing long-term requirements for *CEAA* assessments.	Most new suspension-type aquaculture structures are now being considered a "work" under section 5 of the *NWPA*, which in turn requires the completion of an environmental assessment under *CEAA*. This requirement to complete *CEAA* assessments is relatively recent, and, as yet, no tools have been developed to assist industry in understanding and complying with the process. Furthermore, no transition period to comply with the new requirements has been provided.	Policy
11. Implement a strategy to develop, in a timely fashion, a consistent approach to the application of CEAA across the country. This should include development of class screening models for efficient and effective application of the *CEAA* process.	It would appear that DFO will require information, additional to that submitted with an initial application, to complete *CEAA* reviews of aquaculture operations. Until requirements are clarified, there will be some additional costs for the industry. As many of the environmental concerns are similar for various types of aquaculture activities, class screening could help reduce costs while ensuring the quality of assessments. Class screening refers to a planning process. Projects that are subject to screening under the CEAA, and that have common characteristics and predictable and mitigable environmental effects, are subject to a screening using a "Model Screening Report". This is approved by the	Policy and/or Regulatory

	Canadian Environmental Assessment Agency through a review process outlined in the act. Class screening would also reduce costs and the time required for the review of applications by government. The development of class screenings, or a comprehensive sectoral guideline for aquaculture, that includes consideration of information requirements for the different jurisdictions, would simplify the process for operators and could be used to help set clearer criteria for evaluation by responsible authorities. Class screenings could also be structured with a view to aiding proponents in meeting the information requirements under other federal laws.	
12. Task a special working group, led by Environment Canada, to analyze the type of regulatory framework that could be developed under section 36 of the *Fisheries Act* with respect to mitigative measures required in relation to the deposit of deleterious substances from aquaculture operations in waters inhabited by fish. This should include consultation with the aquaculture industry throughout the course of this work.	One example of a lack of clarity about the application of legislation relates to section 36 of the *Fisheries Act*, regarding the deposition of deleterious substances. By providing clear and transparent standards, regulations under section 36 could give confidence to stakeholders that environmental interactions are controlled. Additionally, by specifying compliance standards, regulations would provide added security to the aquaculture sector and to financial institutions.	Policy and/or Regulatory

Fish Habitat Protection 13. Refine application of the DFO habitat policy with respect to section 35 of the *Fisheries Act*, including authorizations for aquaculture operations, by managing potential interactions of aquaculture and the environment within a framework of risk analysis and management, and ensure that there is a level playing field for aquaculture in relation to other development sectors such as commercial and recreational fisheries. In addition, there is a need for operational policies to support the application of the DFO habitat policy to aquaculture.	**Fish Habitat Protection** Provincial and federal governments are hesitant to allocate or expand the size of aquaculture site leases because of ambiguity with respect to the application of the DFO Policy for the Management of Fish Habitat (1986) to aquaculture. This deters investment in the aquaculture industry in Canada. Section 35 of the *Fisheries Act*, which addresses harmful alteration, disruption or destruction of fish habitat, has major implications for aquaculture development. The application of this provision to the aquaculture industry is not clear, which complicates enforcement and compliance from both the regulators' and the aquaculturists' perspectives. To date, DFO experience in applying its habitat policy to aquaculture has been limited and it has not yet developed a clear and consistent approach that recognizes the contribution of aquaculture to total production from the aquatic resource. Moreover, federal officials have few guidelines to assist them in making decisions and formulating recommendations to the provinces on lease applications and monitoring aquaculture activities. Furthermore, application of the habitat policy needs to be refined with respect to dealing with potential interactions of aquaculture and the environment within a framework of risk analysis. The policy also needs to be applied in an equitable manner to aquaculture and other sectors such as commercial and recreational fisheries.	Policy

14. Recognize, in policy, the contribution of aquaculture to productive capacity of aquatic resources in relation to application of section 35 of the *Fisheries Act*.	In cases where aquaculture activity augments tonnage (production) of fish and shellfish, and where aquaculture contributes to the productive capacity of lakes and oceans, its contribution to total fish production needs to be recognized. Current DFO habitat policy is limited to protecting habitat in support of "natural" productive capacity for commercial, recreational, and subsistence fisheries. Also, the concepts of "no net loss" and "net gain" need to be clarified to take into account the contribution of aquaculture to productive capacity.	Policy
Navigable Waters 15. Amend the *NWPA* to streamline the review process and modernize the compliance and enforcement regime with regard to aquaculture.	**Navigable Waters** Most suspension aquaculture structures require approval under section 5(1) of the *NWPA* as they have the potential to significantly interfere with navigation. At the same time, the industry is continuing to expand. Both these factors have greatly increased workload and decision-making responsibility under *NWPA*, resulting in delayed decisions. Through proposed amendments to the *NWPA* or administrative changes, CCG is actively working to streamline and clarify review processes and to improve measures to ensure compliance with conditions once approvals have been granted.	Legislative
16. Develop national guidelines for aquaculture works to facilitate decision-making with respect to site approvals, site marking, and site design requirements; evaluate the benefits of including these guidelines in regulations under section 12 of the *NWPA*.	Updated guidelines are required and, over the longer term, regulations may be needed to assist field staff in efficient and consistent decision-making.	Regulatory and/or Policy

17. Amend the Schedule to the Navigable Waters Works Regulations (NWWR) to increase the duration of approvals for aquaculture works and sites under section 5(1) of the *NWPA*. The recommendation is a duration of 20 years. Further analysis, in conjunction with CCG, is required.	The term of a section 5(1) approval for aquaculture is currently for five years. This does not take into account that investments in aquaculture operations require a long term for a return to be made. To address this, the duration of approvals should be extended to assure investors and financiers that the lease is a secure asset, as long as the aquaculturist meets the lease conditions.	Regulatory
Allocation of Aquatic Space 18. Develop and implement a national model for integrated coastal zone management beginning with pilot projects that would include aquaculture along with other user groups and activities.	**Allocation of Aquatic Space** There is considerable competition for the use of public waters among various groups, including recreational boaters, fishers, aquaculturists, shippers, offshore oil and gas developers. Integrated coastal zone management is one means whereby long-term, balanced decisions could be made on the use of coastal and open sea areas, including use for aquaculture and enhancement purposes. The time frame for implementation of an effective mechanism for integrated coastal zone management, however, is lengthy. To meet the current needs for the aquaculture sector, waiting for a system of coastal zone management to be implemented is not acceptable.	Policy
19. Task a special Assistant Deputy Minister Working Group to develop, on an urgent basis, national guidelines and operational policies for decision-making regarding allocation of aquatic space for aquaculture purposes.	At the same time, the lack of guidelines to assist operational staff with resource allocation decisions is delaying the decision-making process and constraining growth of the sector.	Policy

Introductions and Transfers of Aquatic Organisms 20. Finalize and implement a National Introductions and Transfers Code for Aquatic Organisms consistent with recommendations arising from the Canadian Council of Fisheries and Aquaculture Ministers (CCFAM).	**Introductions and Transfers of Aquatic Organisms** The aquaculture industry needs access to high quality broodstock and appropriate policies for the introduction and transfer of aquatic organisms to enhance its international competitiveness. In aquaculture, as in conventional livestock farming, selective breeding programs are used to generate better performing stocks. A number of other countries are ahead of Canada in developing high-performance broodstock lines. Canada's industry needs access to these lines. The importation of broodstock into Canada is being delayed by a lack of clear policies and the lack of a risk management approach for introductions and transfers. For industry, this has resulted in delayed and inconsistent decisions and has impaired competitiveness. The lack of a clear policy framework may result in applications for introductions that contain insufficient information for decision-making, resulting in delayed decisions and multiple reviews of a single request. A federal-provincial-territorial Task Group on Introductions and Transfers was created under the CCFAM. The task group is working to finalize a national code on deliberate introductions and transfers of aquatic organisms, including a comprehensive risk assessment process and a mechanism to arbitrate disputes related to introductions and transfers affecting more than one province or territory. To provide the aquaculture industry with good access to high quality broodstock, there is an immediate need to finalize the national introductions and transfer code within a framework of analysis and management of related risks.	Policy

Aquatic Animal Health **21.** Finalize amendments to the Fish Health Protection Regulations (FHPR) to reflect the needs of an evolving aquaculture sector. **22.** Assign a special task group to oversee the development and implementation of a comprehensive approach to aquatic animal health management in collaboration with industry and veterinarians involved in aquatic animal health. This approach should include: (1) modernizing the FHPR; (2) good laboratory management practices for the FHPR; (3) surveillance programs to determine the status of pathogens in wild and farmed fish stocks; (4) an emergency response program for handling novel disease challenges; (5) ongoing research into pathogens and disease control[4]. This approach should take into consideration health of finfish and shellfish.	**Aquatic Animal Health** The current Canadian program for aquatic animal health is not complete and does not operate efficiently. This also has had a negative effect on industry productivitiy and competitiveness. For the farming of terrestrial animals, Canada has a national animal health program. It is a conclusion of this review that there is an urgent requirement to extend this same comprehensive approach to aquaculture, including such measures as: modernized Fish Health Protection Regulations (FHPR); a quality control/quality assurance program for the FHPR; a national surveillance program for fish disease in both wild and farmed species; an emergency response program for handling new disease problems; and ongoing research into pathogens and disease control. The issue of aquatic animal health is also being reviewed by the CCFAM Aquaculture Task Group. There is a need to ensure consistency between any recommendations agreed to by the CCFAM and any actions that may be taken by the federal government with respect to aquatic animal health.	Policy and Regulatory

[4] Two other critical requirements are considered as separate issues: (1) authorities for eradication of diseased fish and compensation for eradication measures; and 2) access to therapeutants.

Authorities for Eradication of Aquatic Animals and Related Compensation	**Authorities for Eradication of Aquatic Animals and Related Compensation**	Policy
23. Negotiate a Memorandum of Understanding (MOU) between DFO and the Canadian Food Inspection Agency (CFIA) pertaining to the application of authorities for ordered eradication and related compensation for eradication of aquatic animals.	The ability to order eradication of diseased fish and to compensate owners for costs related to eradication is critical to effective animal health management. While the Canadian government has a program for managing terrestrial farm animal eradication and compensation, it does not include farmed aquatic animals. Legal mechanisms currently exist to provide for such authorities, but implementation depends on securing fiscal resources and interdepartmental coordination. In developing such measures, the special characteristics of fish farming and the current understanding of fish pathogens and disease control must be considered.	
24. As part of the MOU, support the making of regulations under the *Health of Animals Act* (*HAA*) to enable authorization of eradication orders and compensation for aquaculture stocks.	While the *HAA* and its regulations currently contain provisions for "other" animals and non-specified pathogens, in the longer term, regulations specifically for aquatic animals may be required.	Regulatory

Access to Therapeutants	**Access to Therapeutants**	
25. Facilitate the development and implementation of a program to assist with data collection to support registration of strategically important therapeutant products for aquaculture.	Access to an adequate range of therapeutants is an important component of effective fish health management. In Canada, aquaculturists have access to a much more limited range of registered products than does the industry in leading aquaculture producing countries such as Norway. The lack of access in Canada to the same range of therapeutants available in major producing nations is a further factor that has a negative effect on development of Canadian fish farms. The Canadian aquaculture sector presents a small market to manufacturers of therapeutic agents[5] and the cost associated with generating the necessary data to support product registration is often in excess of potential returns from their production and sale. One option to promote additional product submissions for registration would be to establish a funding program for data collection for strategically important products. This would require additional fiscal resources.	Policy

[5] The industry is small and the use of therapeutants is limited in scope when compared to some other food production sectors. Due to reasons such as environmental concerns, consumer perception and costs, aquaculturists are not using drugs to prevent disease or for growth promotion.

Appropriate Application of Fisheries Management Authorities to Aquaculture Activities 26. Immediately develop a policy to guide the application and enforcement of existing fisheries regulations. 27. In particular, give priority to amending regulations to remove inappropriate controls over aquaculture operations such as harvest seasons and restrictions on gear, and size at harvest established to manage the wild fishery.	**Appropriate Application of Fisheries Management Authorities to Aquaculture Activities** Aquaculture was not a significant activity when the Constitution and existing legislation and regulations for fisheries were developed and the existing legislative regime was not drafted with aquaculture activities in mind. Further, there is very little case law that deals with how the existing legislative regime applies to aquaculture activities. This means that the interpretation of how existing legal measures apply to aquaculture is complicated and uncertain.	Regulatory
28. Clarify the policy regarding proprietary interests and rights over aquaculture stocks in production and seek legislative amendments that may be required. 29. Develop a comprehensive and integrated policy to: subject aquaculture activities and wild fisheries to the same regulatory regimes, when it is appropriate to do so; establish new regimes, as appropriate, for aquaculture activities that are different from the wild fishery. As this policy develops, create statutory and regulatory provisions necessary to support and implement the policy	Clear policy statements would be of great assistance to guide interpretation of fisheries law. In particular, interim guidelines are needed to clearly indicate when fishery regulations that apply to the wild fisheries should also apply to aquaculture activities. These guidelines could well form the basis for a new legislative regime for aquaculture activities. At present, this issue arises primarily with respect to shellfish culture in the Maritime provinces. While regulatory measures under the *Fisheries Act* allow DFO to properly control the public fishery and manage populations of wild stocks, applying these same measures to aquaculture activities is not appropriate given the private ownership of farmed animals.	Policy
30. Conduct further legal analysis and design an appropriate legal framework for implementing the chosen policies through amendment of current legislation/regulations and/or new legislation/regulations.		Regulatory and/or Legislative

Access to Wild Fish Resources for Aquaculture Purposes	**Access to Wild Fish Resources for Aquaculture Purposes**	
31. Amend the existing draft policy on Access to Aquatic Resources for Aquaculture to provide formal access to wild resources for aquaculture purposes, such as broodstock and seedstock collection.	The aquaculture industry requires access to certain wild stocks for the purposes of research, broodstock supply, and grow-out activities. Currently, DFO can allocate fish resources for various purposes, including aquaculture. However, there is no clear national policy with respect to the allocation for aquaculture purposes. Lack of access to wild fish resources for broodstock and limited access to juveniles are hindering research, development and subsequent commercialization of new species for farming in Canada. While access to wild seedstock for shellfish operations has not been a problem to date, more certainty regarding access is required to protect investments and to encourage future investment in aquaculture.	Policy

Shellfish Food Safety Programs 32. Task a special subcommittee of Assistant Deputy Ministers from Environment Canada, CFIA and DFO to analyze the efficiency and efficacy of the current tripartite administration and delivery of the Canadian Shellfish Sanitation Program (CSSP) and to determine if improvements can be made in services governing food safety. 33. Review and consider the implementation of the recommendations of the joint federal government-industry Shellfish Water Quality Monitoring Committee with respect to new ways of service delivery.	**Shellfish Food Safety Programs** The Canadian Shellfish Sanitation Program (CSSP) was developed in 1925 to ensure that all shellfish growing areas meet approved water quality criteria, that pollution sources to these areas are identified and that all shellfish sold commercially are harvested and handled in an approved manner. Some growing areas and some shellfish activities and products have good potential for shellfish aquaculture production, but are not covered under the CSSP. Lack of government fiscal resources or alternative implementation mechanisms to support these activities and products is impeding expansion of the shellfish sector. A strengthened shellfish food-safety monitoring program is needed to assist in the expansion of shellfish aquaculture. The CSSP, including programs to monitor water quality and test for biotoxins, has been maintained by the federal government since the 1940s. All harvest of certain species of shellfish must come from coastal areas covered by these programs, but the extent of these areas and an increase in their size have been limited for a variety of reasons. Given finite resources and expanding requirements for service, more efficient methods of service delivery for these programs are required.	Policy

Enhancement and Sea Ranching of Public Stocks	**Enhancement and Sea Ranching of Public Stocks**	
34. Develop a policy, program, legal framework, and reinforced management agreement, including licence fees, to support the enhancement of public stocks of fish and shellfish in an effort to use aquaculture technologies to increase the productive capacity of Canadian fisheries.	Enhancement/sea ranching of public stocks could significantly increase harvesting opportunities for traditional fisheries, generate new opportunities for the fisheries and aquaculture supply industries, and improve the cooperation and linkages between the wild fisheries and aquaculture sectors. The current regulatory framework does not contain any policy or specific provisions to encourage the enhancement and sea ranching of public stocks. It is a conclusion of this review that an effective enhancement strategy should be developed and supported through appropriate policy and regulatory changes. Development of enhancement opportunities should be initiated with sessile shellfish such as scallops and clams because their management is much simpler than for more mobile species. Our analysis indicates that the policy and most authorities that would be required to enable both finfish and shellfish enhancement activities would be similar.	Policy and Regulatory

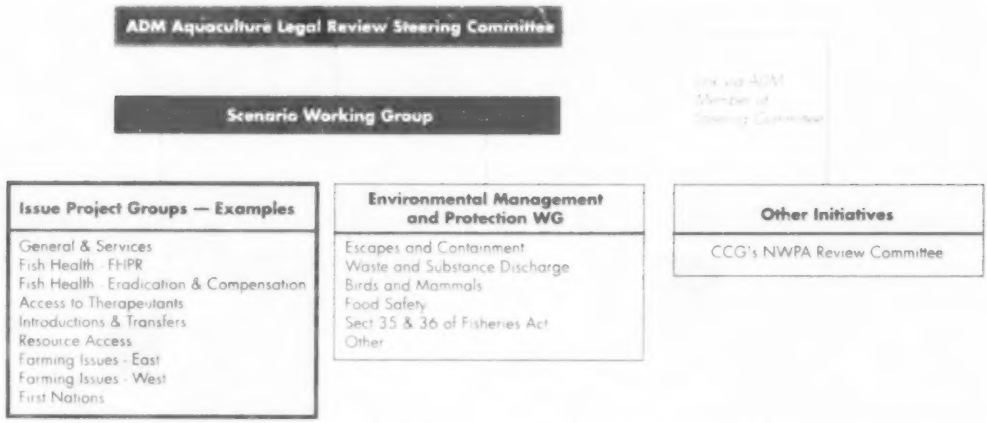
Federal-Provincial-Territorial Harmonization 35. It is recommended that the CCFAM Task Group on Aquaculture establish a formal mechanism, such as a permanent standing committee, for ongoing coordination and cooperation between the two levels of government, for the purpose of: discussing and resolving legal and regulatory issues, and determining administrative responsibilities, as may be required; removing overlap and duplication; and addressing any gaps in the federal, provincial and territorial legal framework.	**Federal-Provincial-Territorial Harmonization** The federal government, the provinces and territories recognize the need to harmonize, to the extent possible, the administration of aquaculture. Through the CCFAM Task Group on Aquaculture, OCAD and the provinces/territories are compiling lists of all areas of authority and administration related to aquaculture.	
36. It is also recommended that the opportuneness of amending the existing federal-provincial-territorial MOUs be analyzed. The objective would be to clarify and delineate roles and responsibilities between the two levels of government and ensure that administrative responsibility rests with the level of government most capable of effective service. Where there is shared jurisdiction, initiatives should be consistent and complementary.	The next step is to jointly discuss roles and responsibilities in the interest of harmonization.	

Long-Term Strategy (Phase Two)

See Section 7.2

Annex II

1. Organization Chart for the Legal Review



Annex III — Reference Papers

*Carey, Tim. (Tim Carey and Associates) March 2000. "Options for Implementing Eradication and Compensation Programs Related to Diseases of Aquatic Organisms in Canada." Published by the Office of the Commissioner for Aquaculture Development—Special Paper, Ottawa, 47 pp.

Egan, David. (CCG Consulting Group Limited and PricewaterhouseCoopers). October 1999. "The Financial and Economic Impacts of Federal Regulation on the Aquaculture Industry of Canada's East and West Coasts. Phase II: Report of the Federal Aquaculture Regulatory Review." Published by the Canadian Aquaculture Industry Alliance, Ottawa, 62 pp.

Everingham, Chris and Kathryn Fisher. (Beak International Incorporated and Everingham Associates) March 1998. "An Aquaculture Regulatory Review Project to Assess the Impact of Selected Federal Regulations on Business. Phase I: An Industry's Perspective Report on Workshop/Questionnaire Results." Published by the Canadian Aquaculture Industry Alliance, Ottawa, 138 pp.

Minister of Supply and Services. March 1995. *Federal Aquaculture Development Strategy*. Published by the Communications Directorate, Department of Fisheries and Oceans, Ottawa, 18 pp., DFO/5066.

*Rogers, Brian. (Rogers Consulting Inc.) March 2000. "Review of Legal and Policy Frameworks Used to Regulate and Legislate Aquaculture in Australia, Japan, New Zealand, Norway, and the United States." Published by the Office of the Commissioner for Aquaculture Development – Special Paper, Ottawa, 96 pp.

*Shillington, Tom. (Shillington & Burns Consultants Inc.) February 2000. "A Proposed Environmental Management and Protection Regime for Aquaculture Development in Canada." Published by the Aquaculture Legal Review Environmental Management and Protection Working Group, Office of the Commissioner for Aquaculture Development—Special Paper, Ottawa, 25 pp.

Stechey, Dan. March 9, 2000."Scope of Aquaculture Activities." Office of the Commissioner for Aquaculture Development - Unpublished Paper, 3 pp.

OCAD will provide interested parties with electronic copies of Annex III reference papers that are marked with an asterisk (*). Other papers can be obtained from the indicated sources or by contacting OCAD.

Annex IV — Legislation and Regulations Pertaining to Aquaculture

Federal Legislation Related to Aquaculture

- Appropriation Acts
  - Atlantic Enterprise Loan Insurance Regulations
  - Northern Ontario Loan Insurance Regulations
- Atlantic Canada Opportunities Agency Act
  - ACOA Loan Insurance Regulations
  - Action Loan Regulations
- Atlantic Fisheries Restructuring Act
- Canada Shipping Act
  - Boating Restriction Regulations
- Canadian Environmental Assessment Act
- Canadian Environmental Protection Act
- Canada Wildlife Act
  - Wildlife Area Regulations
- Coastal Fisheries Protection Act
  - Coastal Fisheries Protection Regulations
- Employment Equity Act
  - Employment Equity Regulations
- Excise Tax Act
  - Agriculture and Fishing Property (GST/HST)Regulations
- Feeds Act
  - Feeds Regulations
- Financial Administration Act
- Fisheries Act
  - Aboriginal Communal Fishing Licences Regulations
  - Atlantic Fishery Regulations
  - Fishery (General) Regulations
  - Fish Health Protection Regulations
  - Fish Toxicant Regulations
  - Management of Contaminated Fisheries Regulations
  - Marine Mammal Regulations
  - Maritime Provinces Fishery Regulations
  - Ontario Fishery Regulations
  - Pacific Fishery Regulations
  - Quebec Fishery Regulations

- Fisheries Development Act
- Fish Inspection Act
  - Fish Inspection Regulations
- Food and Drugs Act
  - Food and Drug Regulations
- Freshwater Fish Marketing Act
- Health of Animals Act
  - Health of Animals Regulations
- Migratory Birds Convention Act
- Navigable Waters Protection Act
- Pest Control Products Act
  - Pest Control Products Regulations
- Oceans Act

Provincial and Terrirorial Legislation and Regulations Pertaining to Aquaculture

British Columbia

- Aquaculture Regulation
- Aquaculture Waste Control Regulations
- Corporation Capital Tax Act
- Environmental Assessment Act
- Farm Practices Protection Act
- Fisheries Act
- Freedom of Information and Protection of Privacy Act
- Industrial Development Incentive Act
- Lands Act
- Municipal Act
- Small Business Venture Capital Act
- Social Service Tax Act
- Waste Management Act
- Wildlife Act
- Fish Inspection Act
- Water Act

Alberta

- Alberta Fisheries Act
  - Alberta Fisheries Regulations

- Alberta Water Act
- Land Act
- Environmental Protection and Enhancement Act
- Water Act
- Public Health Act

Saskatchewan

- Fisheries Act
  - Fisheries Regulations
- Animal Protection Act
- Provincial Land Act
- Environmental Management Protection Act
- Wildlife Act

Manitoba

- Water Rights Act
- Environment Act
- Crown Lands Act
- Manitoba Fisheries Act
- Health Act

Ontario

- Fish and Wildlife Conservation Act
- Ontario Water Resources Act
- Public Lands Act
- Fish Licensing Regulations
- Environmental Protection Act
- Pesticide Control Act
- Environmental Assessment Act

Québec

- Loi sur les pêcheries et l'aquaculture commerciales
  (An Act Respecting Commercial Fisheries and Aquaculture)
- Loi sur la conservation et la mise en valeur de la faune
- Loi sur la qualité de l'environnement
- Loi sur les produits alimentaires
- Loi sur le régime des eaux
- Loi sur la transformation des produits marins

New Brunswick

- Aquaculture Act
  - Aquaculture Regulations
- Fish and Wildlife Act
- Fish Inspection Act
- Fish Processing Act
- Fisheries Development Act
- Inshore Fisheries Representation Act
- Clean Environment Act
- Pesticide Control Act

PEI

- Environmental Protection Act
- Fish and Game Protection Act
- Fisheries Act
- Institute of Man and Resources Act
- Pesticides Control Act
- Fish Inspection Act

Nova Scotia

- Environment Act
- Executive Council Act
- Fisheries and Coastal Resources Act
  - Aquaculture Licence and Lease Regulations
- Public Service Act
- Remembrance Day Act
- Pesticide Control Act
- Crown Lands Act
- Wildlife Act

Newfoundland

- Aquaculture Act
  - Aquaculture Regulations
- Environment Act
- Lands Act
- Pesticides Control Act
- Historic Resources Act

Yukon

- Fish Processing Act
- Indian Act
- Yukon Territory Fishery Regulations